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THE PHYSICAL GROWTH, THE DEGREE OF INTELLIGENCE AND THE PERSONALITY ADJUSTMENT OF A GROUP OF DIABETIC CHILDREN*

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THERE has been an interest for some time in the mental development of the diabetic child, as shown by the studies made by Joslin[1] and White,[2] who state that the diabetic child is superior mentally. West, Richey and Eyre,[3] in their study of intelligence levels of 76 diabetic children, state, "There are some mentally subnormal juvenile diabetics but the proportion of mentally superior is greater than among nondiabetics."

Brown[4] in a more recent study of diabetic children included data not only on the physical and on the mental development but also on personality traits. He states, "It was found that our group of diabetic children was distributed quite normally as to intelligence; 43 per cent of the diabetics are within the average I.Q. range, 90 to 100, with approximately equal numbers above and below." As to personality traits he says, "Increased irritability and excitability are the only significant personality changes noted by the parents, and no significant deviations are noted in the school or testing situation."

The present study was undertaken in order to collect as complete data as possible on an unselected group and to determine whether the diabetic child differs from the nondiabetic in physical growth, in intelligence, in school achievement and in personality adjustment.

SUBJECTS

There were 49 children in this study — 25 girls and 24 boys. During the course of the investigation 2 of the girls died, one from acute poliomyelitis; the cause of the death of the other could not be determined. The children had diabetes mellitus in various degrees of severity. They developed it before the age of fifteen years. Twenty-three became diabetic before the age of seven, 25 between the ages of seven and fourteen, and 1 after fourteen years of age.

The experimental group consisted of diabetic children attending the General and Children's hospitals in Buffalo, New York, and the private patients of one of us (B.D.B.).

The number of other children in the families varied from one to ten. Seventeen of the children were the oldest and 15 were the second child in the family. One child had a sibling who had diabetes; he had died before the discovery of insulin. There was one set of identical twins, one of whom was diabetic.

As to the hereditary factor, 2 of the children had a father who had diabetes. Eight of the children had a known paternal history of diabetes; 9 had such a history on the maternal side; in 2 both sides of the family were involved. Forty-five children were white and 4 were colored, 2 of the latter being partly Negro.

All but one of the children studied were American-born. Both parents of 36 children were born in the United States; the parents of 5 of these children could trace their ancestry back to Yankee stock for several generations. The foreign elements consisted of German, Polish, English, Scotch, Irish, French, Czechoslovakian, Russian, Italian and Greek stock, but the German predominated. There were no Jewish children in the group. Thirty-nine children came from urban districts, and 10 from rural areas.

The parents of 14 of the children were able to pay for insulin and for medical care. Those of 25 bought insulin for their children but did not pay for medical care. Those of 10 could not pay for

*A joint publication of the Buffalo General Hospital and Buffalo Children's Hospital. This study was promoted by Miss Ethel Schultz; her role in the problem itself is here dedicated.

In Memory of Mrs. Grace Millard Knox.

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either. The complete educational record of both parents could be obtained in only 27 cases. One parent of 5 of the children had not completed the eighth grade as compared with one parent of 22 of them who had. One of the parents of 22 of the group had either attended or graduated from high school. One parent of 7 of the children had had a college education or its equivalent. The fathers of 30 of the patients were classified according to the Goodenough[5] grouping (Table 1). As would be expected, since more children came from urban communities, there were fewer farmers than would be present in the general population.

TABLE 1. *Classification of Fathers of Diabetic Children.*

Goodenough Group	No.	Per Cent	Percentages of Employed Men in the United States (Goodenough)
I Professional	2	7	3.1
II Semi-professional and managerial	6	20	5.2
III Clerical, skilled trades and retail business	4	13	15.0
IV Farmers	2	7	15.3
V Semi-skilled occupations, minor clerical positions and minor business	8	26	30.6
VI Slightly skilled trades	5	17	11.3
VII Day laborers of all classes	3	10	19.5
Total	30		

Experimental Procedure

The date of the onset of diabetes, the familial and developmental histories, the educational record and laboratory findings, including height and weight measurements, were obtained for each child from the hospital record and at the time of individual interviews with the parents at home and at the hospital. Both height and weight were observed on 20 girls and 18 boys, using the standards established by Engelbach[6] on the basis of chronological age. More boys than girls fell below the minimum standard in height. One of the boys had just recently developed diabetes, while the others had had the disease for four years or longer (Figs. 1–4).

A number of psychological tests were given to each of the 49 children in the group. These included the Revised Stanford-Binet Intelligence Scale,[7] the Ferguson Form Boards,[8] the Metropolitan Achievement Tests,[9] the reading, spelling and arithmetic sections of the New Stanford Achievement Test,[10] the Rogers Test of Personality Adjustment[11] and the Bernreuter Personality Inventory.[12] In 5 cases where it was doubtful that an accurate measure of a child's abstract intelligence had been obtained, either the second form of the Stanford-Binet Scale, Form M,[7] or the Kuhlmann-Anderson Scale[13] was added. One child who was partially blind had the Hayes Revision of the Stanford-Binet Scale.[14] In 5 cases the Ferguson Form Boards were not applied, because 2 of the children were too young, 1 was partially blind and 2 did not return to complete the tests. Twenty-nine children were given either the Metropolitan or the Stanford achievement tests, the choice of

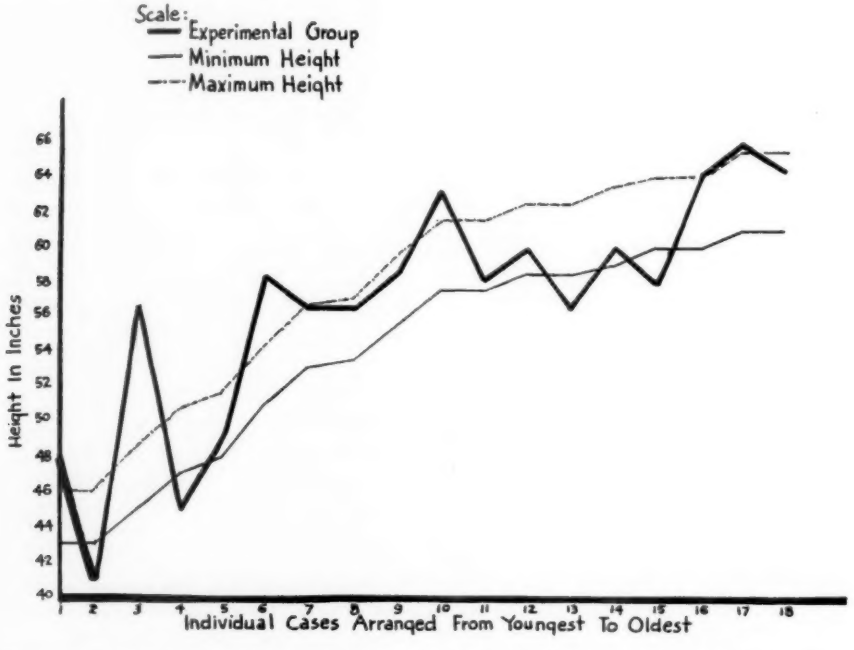

FIGURE 1. *Heights of Girls as Compared with the Minimum and Maximum Heights for Their Chronological Ages (Engelbach Norms) (Werner[6]).*

test depending on the age. Thirteen children were beyond the ninth-grade level of the tests, 4 were at a preschool level, 1 was partially blind, 1 was in a special class for retarded children and 1 had never attended school. Personality tests were included in the series, so that an objective measure of the extent of the child's personality difficulties, in certain areas, could be obtained. The Rogers Test was used with the children from nine to thirteen years of age, and the Bernreuter Inventory with those who were beyond this age level.

Each child was interviewed by the psychiatrist, with the exception of 4, in order to determine his or her attitude toward diabetes, home, school, neighborhood, self and sex. In other words, an attempt was made to learn the child's mental attitude and trend of thought. One of the parents of each child was also interviewed to reinforce

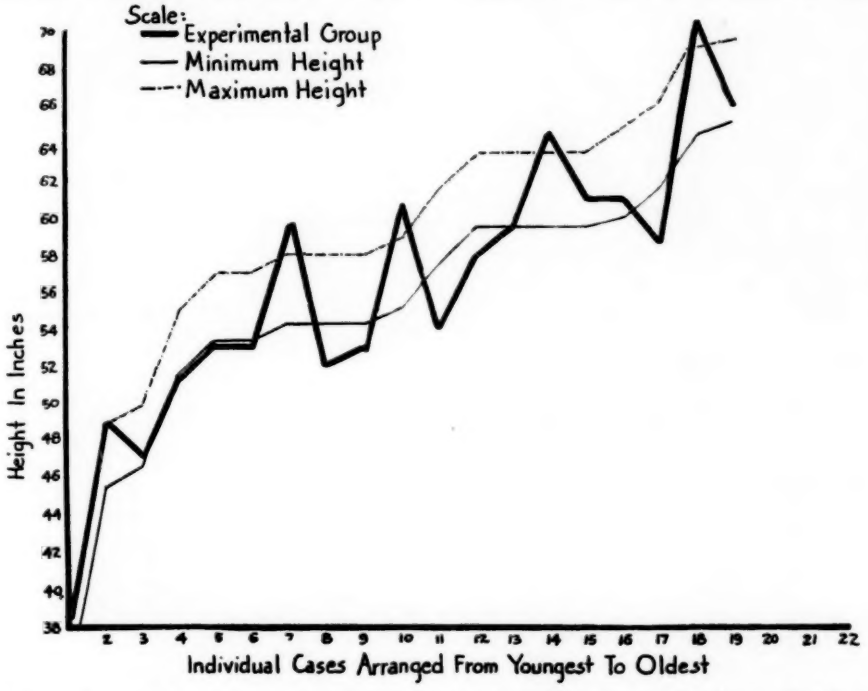

FIGURE 2. *Heights of Boys as Compared with the Minimum and Maximum Heights for Their Chronological Ages (Engelbach Norms) (Werner[6]).*

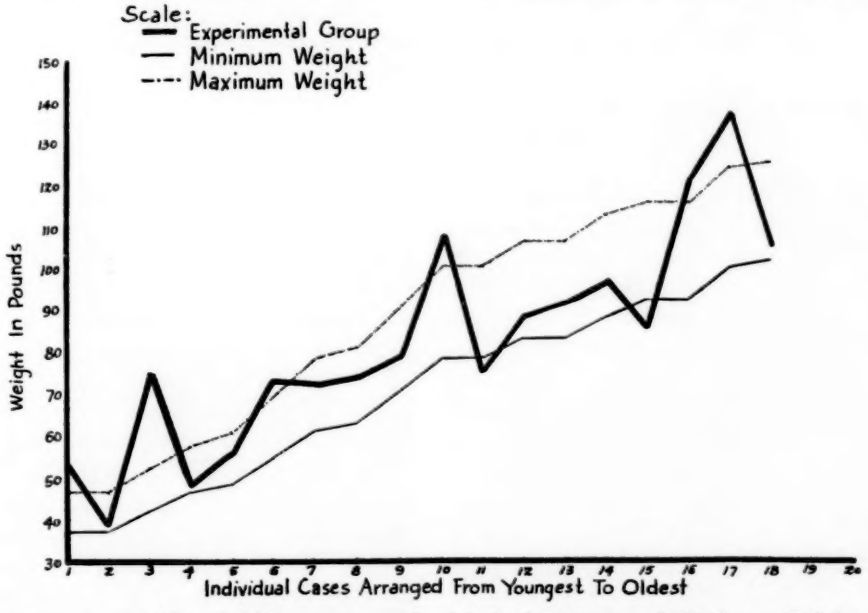

FIGURE 3. *Weights of Girls as Compared with the Minimum and Maximum Weights for Their Chronological Ages (Engelbach Norms) (Werner[6]).*

the information gained and to learn the parents' attitude toward the child and toward his or her physical condition.

Results

Physical Findings

Discounting the usual children's diseases and the diabetes, it was found that the experimental group as a whole was healthy. This was probably due to the fact that the children were under strict medical supervision. Only 6 children had prominent physical defects. Two had visual defects; one of these had defective vision which was corrected by glasses, the other had bilateral cataracts. In the latter case, the cataract of the right eye was extracted in July, 1939; the other was to be done later. One boy had osteomyelitis with multiple foci; 1 girl, after a fracture of the right tibia in 1938, developed a bony cyst which was removed in June, 1939. One girl contracted syphilis and gonorrhea, and 1 boy had Vincent's angina. A sixteen-year-old boy who had had diabetes for eleven years, during most of which time he had not had consecutive medical attention, was below the minimum standard in both height and weight. He was given intramuscular injections of anterior-pituitary growth hormone every four or five days and 1 gr. of thyroid daily. After six months of such therapy he had grown 1 inch and gained 10 pounds (Fig. 5). This medication was then discontinued and intramuscular injections of 25 mg. of testosterone propionate were administered every four to seven days. Within four months the boy's height had increased 1¾ inches, making a total gain of 2¾ inches in less than a year. The growth of the external genitalia and the development of pubic hair were very much faster when testosterone was used. The rapid development, however, might have been due entirely to the fact that the patient was taking a more adequate diet and was under strict medical supervision.

Psychological Findings

Even though our experimental group is small, it is interesting that the distribution of the intelligence corresponds very closely to the intelligence of children in the general population. Figure 6 gives a graphical picture of the distribution of the intelligence quotients on the Revised Stanford–Binet Scale,[15] as compared with that of the composite Forms M and L intelligence quotients for the children used by Terman and Merrill in standardizing this scale of tests.

The mean intelligence quotient of the experimental group was 103 and the standard deviation 16.8. In the standardization of the Stanford–Binet Scale the mean intelligence quotients ranged from 100 to 104, varying slightly for each age level, and the standard deviation was 16.4. So far as abstract intelligence is concerned, then, the children having diabetes used for the present study were not significantly brighter or duller than the large group of children on whom the standardization of the intelligence test was based. Possibly the impression that diabetic children are brighter comes from two sources. First,

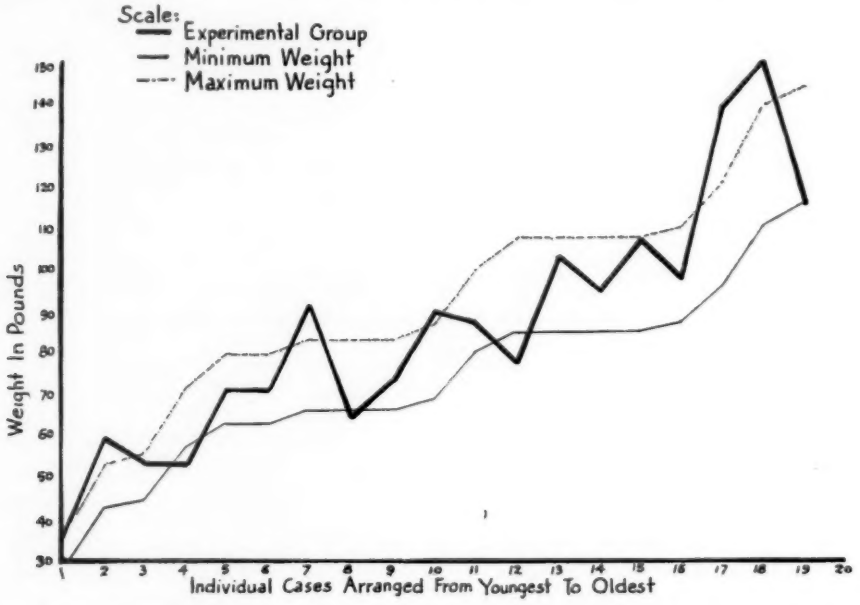

FIGURE 4. *Weights of Boys as Compared with the Minimum and Maximum Weights for Their Chronological Ages (Engelbach Norms) (Werner[6]).*

quite a number of children who have had diabetes over a period of several years are short in stature. They may give the impression that they are brighter than one would expect children of their stature to be. Secondly, a great many of the children are able to inject their insulin and to take part in or be responsible for the weighing of

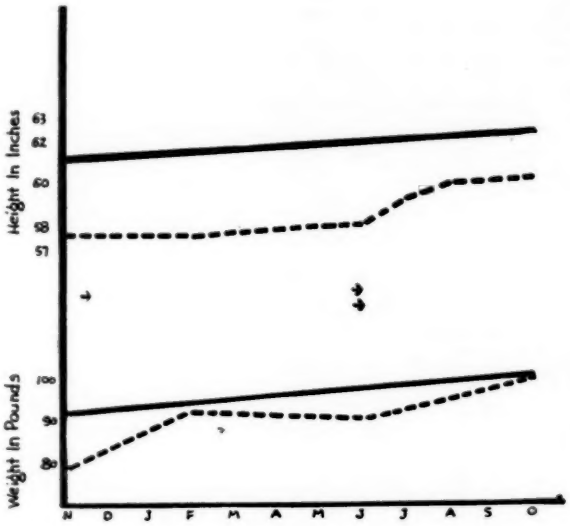

FIGURE 5. *Growth Study During Treatment with Antuitrin G and Testosterone Propionate.*

The subject, J. G., a sixteen-year-old boy, had been diabetic for about eleven years. The solid lines represent the standard minimum height and weight curves, and the dotted ones those of the patient. The single arrow designates the beginning of the administration of Antuitrin G; the double arrow, that of testosterone propionate.

their food. On the surface this seems to be a complicated procedure requiring a good deal of intelligence, but if analyzed it is not found to be so.

The remaining tests included were of more value in understanding the patients' educational problems and making recommendations for them as individuals.

The correlation between the mental ages of each child* on the Revised Stanford-Binet Scale, a measure of verbal intelligence, and those on the Ferguson Form Boards, a measure of form-space perception, was + .62 ± .06. Although not particularly high, this indicates a fairly marked tendency for the children with superior verbal intelligence to have superior form-space perception, and vice versa. Only in a few scattered cases was there a marked difference between the two ratings (Fig. 7†).

*The exceptions were the children who were too young to be given the Ferguson Form Boards.

†Five of the group were not given the Ferguson Form Boards, so that they are not represented in the graph.

When educational achievement tests were given, 1 of the group was found to have a severe reading disability and many were wrongly placed in school. One example was that of a girl who had been absent from school a great deal, giving as her excuse the fact that she had diabetes. She was twelve years of age at the time she was seen and was in the fourth grade, with children who were much smaller in size and much younger than she. On the basis of her ability and her achievement it was recommended that she be permitted to try sixth-grade work. She was overjoyed at the prospect of being with children of her own age.

Of the 29 children who were given educational achievement tests, 9 appeared to be placed in a grade which was too difficult for them, and 9 in too low a grade for their level of ability. The correlation between the mental ages of the children on the Revised Stanford-Binet Scale and their mean educational age on the achievement tests was + .29 ± .11. Figure 8 shows the individual differences.

It was interesting also to discover that, on the basis of the mental age of the children on the

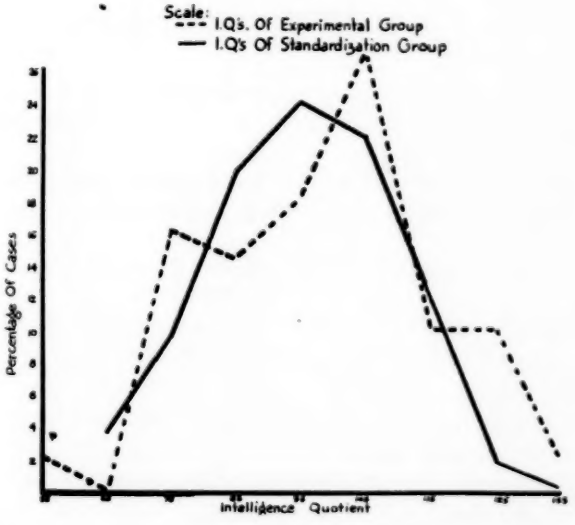

FIGURE 6. *Polyon for Intelligence Quotient on Revised Stanford-Binet Scale (1937 Revision).*

Revised Stanford-Binet Scale and their mean educational age on the achievement tests (admittedly not all-inclusive criteria), 5 were working beyond the level of their ability in school and 10 were doing poorer work than one would expect of them. One example of this was the work of a pair of identical twins, only one of whom had diabetes but both of whom were examined. There was a strict father in the picture who expected great things of the boys. It was found that

both were working beyond the level of their ability in school, the one with diabetes being one year and seven months beyond the norm for his mental age level, and the one without diabetes being one year and five months beyond it.

A satisfactory personality test was not available for children under nine years of age, but with 2 exceptions all the others were given either the Rogers Test of Personality Adjustment or the Bernreuter Personality Inventory, there being 18 in the group of nine to thirteen years of age to whom the former test was given, and 19 who were given the latter. The findings of the Rogers Test are listed in Table 2. Only 2 of the children did not rate high in any of these four areas; 7 rated high in one area, 6 in two, 3 in three and 0 in four.

There was some tendency for those of the experimental group to express more social maladjustment and to daydream more than did those of the group on which the test was standardized. However, the test has not been adequately standardized, so that too much value should not be placed on these findings.

The results for the Bernreuter Personality Inventory are given in Table 3. A high score for neurotic tendency on this scale indicates a tendency to be emotionally unstable. Three of the group were above the 75th percentile for this characteristic. Three were below the 25th percentile for the measure of self-sufficiency, showing a dislike for solitude and the frequent seeking of advice and encouragement, while 5 were above the 75th percentile, indicating that they tended to prefer to be alone and to ignore the advice of others. Four tended to be more extroverted than introverted, while 5 were of just the opposite type. Four tended to be submissive, while 6

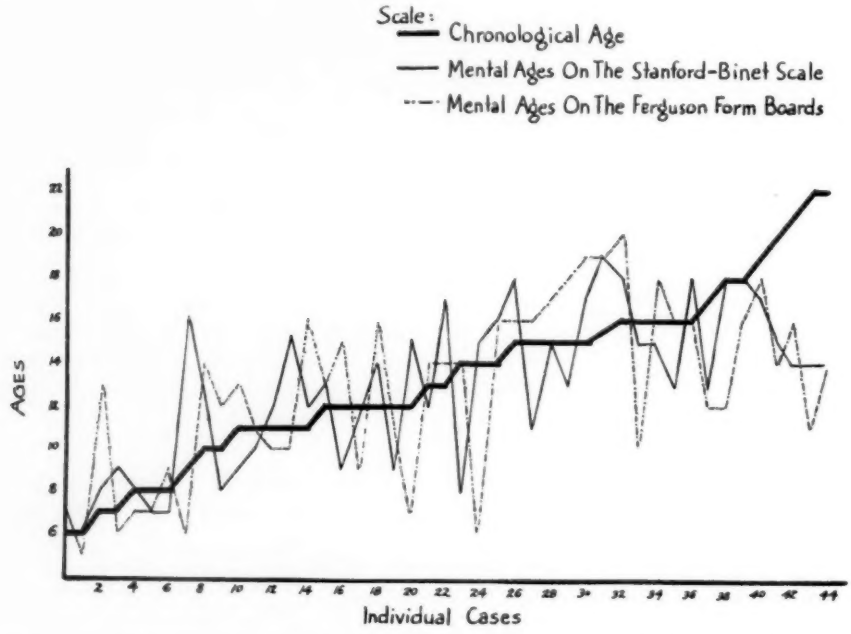

FIGURE 7. *Chronological Ages and Mental Ages on the Stanford–Binet Scale and the Ferguson Form Boards.*

TABLE 2. *Results of the Rogers Test of Personality Adjustment in 18 Patients.*

Personality Inferiority			Social Maladjustment		
Extent	No.	Per Cent	Extent	No.	Per Cent
Low	9	50	Low	2	11
Average	5	28	Average	8	45
High	4	22	High	8	45
Family Maladjustment			**Daydreaming**		
Extent	No.	Per Cent	Extent	No.	Per Cent
Low	5	23	Low	5	28
Average	8	45	Average	3	17
High	5	28	High	10	56

TABLE 3. *Results of the Bernreuter Personality Inventory in 19 Patients.*

Measure of Neurotic Tendency			Measure of Introversion-Extroversion		
Percentile Norms	No.	Per Cent	Percentile Norms	No.	Per Cent
0– 25	5	26	0– 25	4	21
25– 75	11	58	25– 75	10	53
75–100	3	16	75–100	5	26
Measure of Self-Sufficiency			**Measure of Dominance-Submission**		
Percentile Norms	No.	Per Cent	Percentile Norms	No.	Per Cent
0– 25	7	37	0– 25	4	21
25– 75	8	42	25– 75	9	47
75–100	4	21	75–100	6	32

were inclined to dominate others in face-to-face situations.

Psychiatric Findings

The psychiatrist found that the personality tests were valuable, as in some cases they provided data which might not otherwise have been uncovered and which were used in the psychiatric interview. In many cases the personality test gave the same analysis as that which was obtained by the psychiatrist. There were test results which were not "true," but they occurred only in the older maladjusted child, and the falsification of his answers was his method of protecting himself.

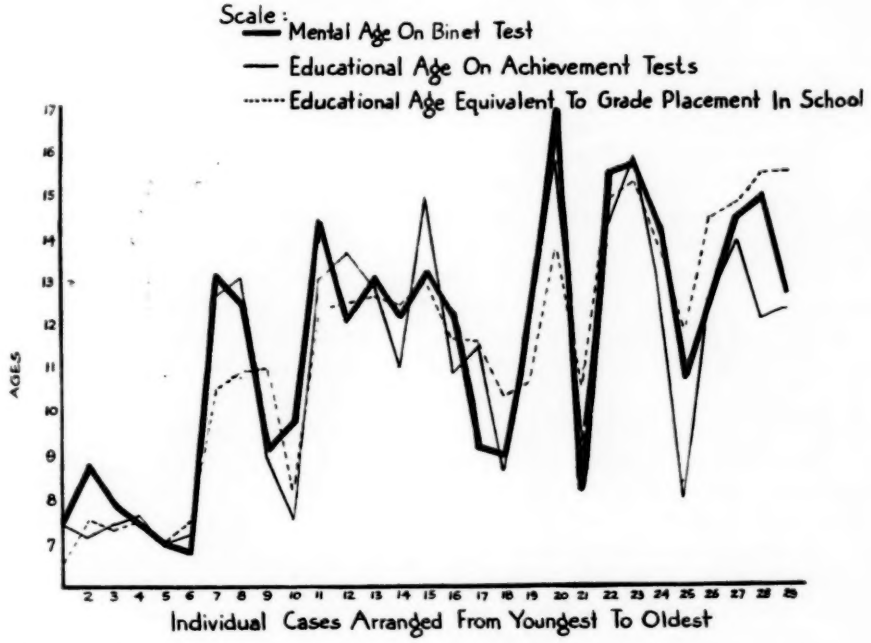
Scale:
Mental Age On Binet Test
Educational Age On Achievement Tests
Educational Age Equivalent To Grade Placement In School
AGES
Individual Cases Arranged From Youngest To Oldest

FIGURE 8. *Intelligence as Compared with Grade Placement and Achievement.*

Of the 45 children interviewed, 13 seemed well adjusted. Eight of the 13 were below seven and a half years of age, and had developed diabetes before the age of four and a half years; the remaining 5 had had diabetes over several years but had developed it at a higher age level. The number of children presenting problems in the emotional field was 32. They expressed themselves as feeling "different" from other children. This feeling created a conflict which expressed itself in various types of reaction: seclusiveness, aggressiveness, boastfulness and show-off behavior. There were several factors centering about the mental life of the child tending to cause this feeling of difference which created feelings of inferiority. They were as follows:

1. The diabetes itself often resulted in a feeling of difference. Nine of the children expressed themselves as having a feeling of shame because they had diabetes. Two of the 9 thought that other children avoided them because they had a "catching disease." One boy was so overwhelmed by the fact that he had diabetes that he was gradually withdrawing from social contacts and developing a shut-in type of personality. These findings were borne out in his personality test. Another boy expressed feelings of guilt and interpreted diabetes as punishment. One girl stated that she felt her social prestige had been lowered with her associates when they learned that she had diabetes. There were 2 girls who resented their having diabetes because it placed them outside the "marriage market"; one girl was so disturbed while discussing this that she became tearful. There were 2 boys who rebelled against diabetes. One believed that it was the cause of an osteomyelitis which kept him hospitalized for months at a time and interfered with his physical activities; the other refused to accept restrictions in diet, and frequently stole food, the ingestion of which was the cause of numerous attacks of acidosis.

It was interesting to find that the diabetes per se caused no emotional reaction in the very young child, except when the illness could be used as a means to gain an end by his threatening that illness would follow if he was not given his own way. Needless to say, the parent invariably gave in to avoid trouble. One child, aged seven, stated during the interview, "I

mustn't become emotional, as it is bad for me." Another interesting finding was that the earlier the child developed diabetes, the more readily he or she accepted it emotionally as part of the growing-up process, whereas those who developed it at a later age tended to rebel against it. Of the 28 children who had accepted the diabetes emotionally, 23 had developed it before the age of seven.

2. Underweight and understature made some children feel different (Figs. 1–4). Of the 45 children interviewed, 24 were more disturbed emotionally over their short stature and loss of weight than by the fact that they had diabetes; 15 of the 24 reacted by becoming seclusive, and did not mix freely with their groups; 5 overcompensated for this by show-off behavior and boastfulness, exaggerating everything they said or did. One of these 5 children, a boy (Fig. 5), was so disturbed by his short stature that he overcompensated by extreme boastfulness, not only of his physical prowess but also of his mental ability. Actually this was not borne out, as he failed to complete his first year in high school, although he was of average intelligence and was mentally able to achieve this. Since his stature and weight have been partially corrected, he seems less disturbed emotionally, and is more willing to co-operate about his diet, with the result that there has been a decided improvement in his diabetic state. Four children were attempting to solve the conflict of short stature and loss of weight: one boy by taking a physical training course; one boy by setting himself up as a chicken farmer; one girl by feeling secure with her new boy friend, saying, "He thinks I'm cute so I don't mind now being so short"; one girl by reflecting the attitude, "Well, there is nothing I can do about it."

3. Other physical defects besides diabetes tended to make 3 children feel different from the group. One boy very much resented having osteomyelitis. Another boy was disturbed because of the fact he had a so-called "asthenic constitution," which interfered with his competitive life, as he became easily fatigued. One girl felt so inferior that she was unable to differentiate which disturbed her most, the diabetes, the short stature or the partial blindness.

4. Intellectual defects contributed to the inferiority of 5 children. They stated that no matter how hard they tried they never received good report cards, which caused criticism by the parents.

5. There were various social factors that entered into the production of conflict. In 1 case it was the problem of race. The child was partly colored, and although of very superior intelligence, in fact having the highest degree of intelligence of the experimental group, she suffered from a marked sense of social inferiority. One boy felt inferior because he always fell short of the high standard set up by his father, who was a business executive. There were 7 girls and 2 boys who suffered severe conflicts in their attempt to emancipate themselves from the home. Unfortunately, the mothers were none too helpful in the crisis. One girl stated that she felt her mother loved her less since she had developed diabetes. Although the mother was not consciously aware of it, she was rejecting the child and was compensating for her feelings of guilt by constantly worrying about her, expressing her anxiety thus: "I never let her go anywhere because I think she will get knocked down by a car or she might have a 'spell,' and besides, her disposition has changed ever since she was told she had diabetes, and I just don't know what might happen to her." Both the parent and the child have been receiving intensive psychotherapy for the past few weeks, which has been helpful in lowering the tension in the home.

We found from the interviews with the parents that they did not differ from any other unselected group of parents. Several were unstable, and had personality difficulties of their own which they tended to project on to the child. Many of the mothers overprotected the child and were surprised when problems developed at a higher age level, while other mothers tried in every way possible to prevent the child from feeling different. Some were successful in their efforts, while others were not because they made too much of an issue of it. Three mothers stated that their children had "changed" since the onset of diabetes. One of these unconsciously rejected the child, which created the change, while the other two were unaware of the role their wrong handling of the child had played in contributing to it. Several mothers stated that their children were more irritable and harder to manage since the onset of diabetes. It was found in many cases that the irritability developed during periods of hypoglycemia, while in others it was found to be an outward protest against some disturbing element in the home. In 1 case it was the way the child had chosen to protest against an older sister who she felt was a rival. One mother expressed herself as being to blame for the child's diabetic condition, and had accepted willingly the "cross" she had to bear.

In a review of the psychiatric material, the emotional problems were found to be similar to those in other children. It is significant that

so few parents were not sufficiently aware of the child's emotional problems to seek advice.

Summary and Conclusions

Forty-nine treated diabetic children in the City of Buffalo and western New York State have been studied from the standpoint of physical growth, degree of intelligence and personality adjustment. The results were as follows:

Physical. It was found that more boys than girls tended to be below the minimum height standard; the weight of both sexes fell between the minimum and maximum standards. Only one child could be classified as a real dwarf; he was markedly improved by adequate injections of pituitary growth hormone and testosterone propionate.

Six of the 49 children had prominent physical defects.

Psychological. The children were neither significantly brighter nor duller than non-diabetic children.

There was a positive correlation between verbal intelligence and form perception.

Several children were misplaced in school. A few were working beyond the levels of their ability.

There were some children who deviated from the normal in one or more personality traits, but not an excessive number for a small unselected group of children.

Psychiatric. Thirty-two children were considered to be maladjusted. The diabetes itself was not the only contributing factor; physical and intellectual defects, as well as social problems, contributed to this maladjustment.

The earlier the child developed diabetes, the more readily he accepted it emotionally as a part of the growing-up process.

It is important that parents receive advice in the handling of their children in order to prevent maladjustments from arising later.

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IRRIGATION AND TIDAL DRAINAGE*

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THE purpose of this paper is to describe certain modifications that we have made in previously described tidal-drainage apparatus, resulting in an instrument of wide urological application (Fig. 1). The tidal-drainage apparatus of

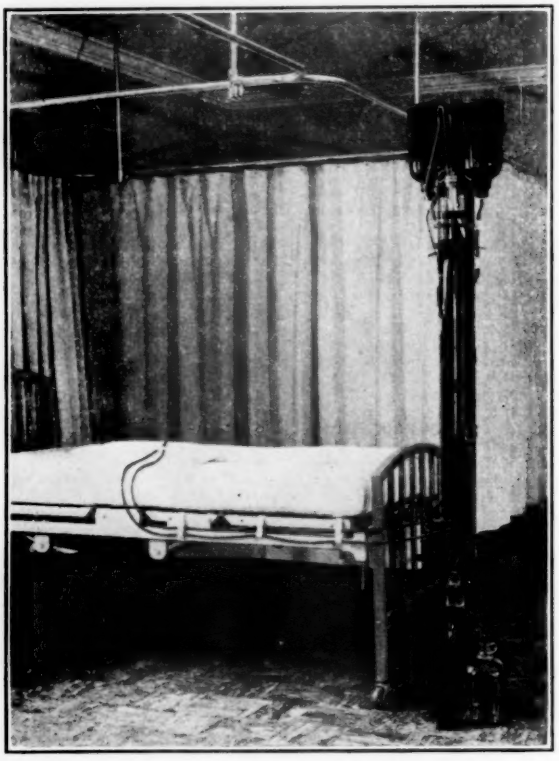

FIGURE 1. *Irrigation and Tidal-Drainage Apparatus.*

Munro and Hahn,[1] while suited to the care of abnormal bladders resulting from injury and disease of the spinal cord, has not been altogether satisfactory for the care of urological problems occurring independently of such damage. The apparatus here described accomplishes: first, intermittent bladder drainage and filling, or tidal drainage; second, tidal drainage with succeeding irrigation; and third, automatic, interval bladder irrigation. There have been many contributions in this field, notably those of Laver,[2] Hinman,[3] Munro,[1, 4, 5] McKenna[6] and, recently, many others. That they have either been unappreciated or appear too formidable for general use is evident from the persistent use of conventional bladder drainage, consisting of an indwelling catheter, connecting tube and drainage bottle. We use the term "bladder drainage" to indicate closed drainage with a tolerated indwelling urethral catheter. Intermittent drainage and filling of the bladder involves a closed system within which it is desirable to have interval irrigation take place.

There are but few indications for bladder drainage which are not to be improved by irrigation and by functional exercise of the bladder. The conventional bedside drainage offers none of these possibilities, and when conducted with the ordinary technic provides many opportunities for infection. This is especially true when intermittent manual irrigation is added to the usual procedure.

With the apparatus as ordinarily connected (Fig. 2), urine from the bladder (*B*) flows through the drainage tube (*DT*) and enters the

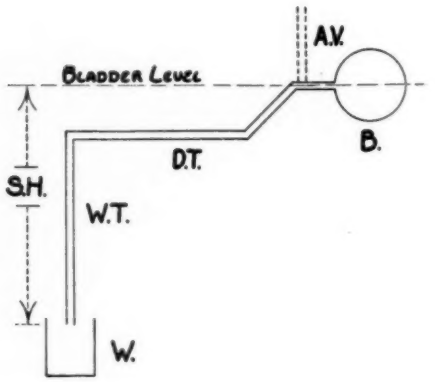

FIGURE 2. *Bedside Drainage.*

waste bottle (*W*). If the tubing is sufficiently small to be filled by a column of urine, suction is developed on the bladder, the force varying with the distance between the lower end of the waste tube (*WT*) and the bladder. To prevent infection of the bladder, both the drainage tube and the waste bottle must be sterile. Otherwise, the respiratory motion of the urine in the tube will slowly transfer bacteria from the waste bottle to the bladder, either from the infected drop on the tube end, or from the waste fluid if the end of the tube is immersed. The weight of the column of urine in the waste tube exerts a constant suction, thus preventing normal filling and dis-

*From the Hitchcock Clinic, Hanover, New Hampshire.

Read at a meeting of the New England Branch of the American Urological Association, Boston, April 20, 1939.

†Assistant, Hitchcock Clinic, Hanover.

‡Member of the Surgical Staff, Mary Hitchcock Memorial Hospital, Hanover.

tention and promoting contraction of the bladder. The addition of an air vent (*AV*) will obviate this constant suction, as well as retard retrograde infection of the bladder, because the waste tube will be empty if air can enter it at the bladder level, and respiratory excursions will then occur only in the horizontal portion of the tube between the air vent and the catheter, thus limiting ascending infection from the waste bottle.

The first step in the direction of a closed, automatic apparatus is perhaps best taken by leading the catheter drainage into a closed bottle with an air vent (*AV*) (Fig. 3). If ordinary bedside

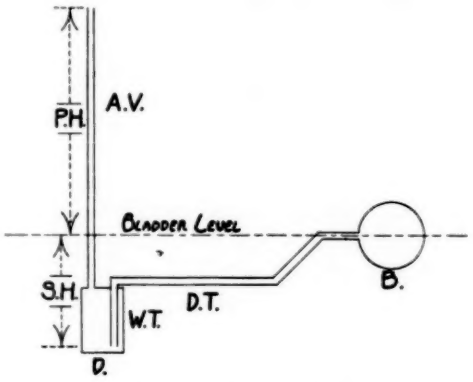

FIGURE 3. *Portion of an Improved Bedside Drainage.*

drainage is changed so that urine flows into a drain bottle (*D*) only slightly below the bladder level, and air escapes from this bottle by way of the air vent, there will at first be a slight suction on the bladder; after the bottle fills and urine rises in the air vent, pressure will be exerted on the bladder. If this system were first filled with water and then connected to the bladder, it would constitute one of the many types of apparatus for decompressing the grossly distended bladder. As it stands, the apparatus would maintain pressure indefinitely and thus prevent bladder contraction, so that intermittent emptying must be made possible.

This is easily accomplished by a simple syphon (*S*), the apex of which is set so as to start at the desired intravesical pressure as indicated by the level of fluid in the air-vent tube, which has now become a cystometer (Fig. 4). The urine will not flow from the top of the air vent, but instead will flow over the syphon as soon as the urine level in the air vent reaches the top of the syphon, and the bladder and the drain bottle will be evacuated. This suction or negative pressure can further be used for the activation of a second syphon for irrigating. The entire automatic nature of the final apparatus depends on the building up of an intravesical pressure and its reduction by syphon action. A syphon works for the same reason that a leather belt will not stay on the back of a chair if one section is longer than the other: the longer section pulls over the shorter. The unbroken water column in a syphon acts in the same way: the weight of water in the longer arm pulls over the water in the shorter arm, and this process continues indefinitely so long as liquid is supplied to the shorter side. When the fluid in the shorter arm is exhausted, air is drawn in and the flow interrupted.

The apparatus works as follows: Urine from the bladder flows into the drain bottle until it is filled. The pressure in the whole apparatus rises until the urine reaches the top of the syphon. It then flows down the long arm of the syphon into the waste bottle. The sucking action of the syphon is exerted on both the bladder and the

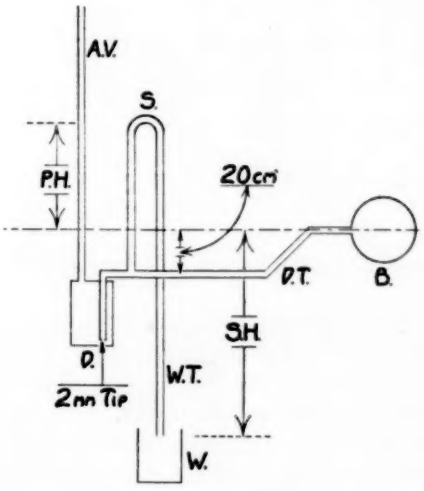

FIGURE 4. *Improved Bedside Drainage.*

drain bottle, but the bladder empties first because it is higher, and also because the tube coming from the bladder is larger at all points than the 2-mm. fused tip of the tube descending into the drain bottle. When first the bladder and then the drain bottle are empty, air coming down the air vent is aspirated into the tip, runs up through the syphon and stops its sucking action. The cycle is repeated as often as the patient excretes enough urine to fill both the bladder and the drain bottle.

It will be seen that this apparatus imitates the normal filling and emptying of the bladder. Because it is easily kept sterile and because it distends the bladder and stretches mucosal folds, bladder infection should be prevented for a long interval. The apparatus should, we believe, be used in preference to ordinary bedside drainage

for the uninfected bladder requiring an indwelling catheter. It is obvious that the frequency of the drainage cycle is dependent on the urinary output of the patient, and therefore is slower than normal, because the drain bottle must be filled as well as the bladder. Hence, in order to maintain normal frequency an additional source of fluid must be added. This fluid is placed in the reservoir (*R*), is controlled by valve *V*, enters the system at *X*, and with the urine fills the drain bottle (Fig. 5). When the pressure in the air

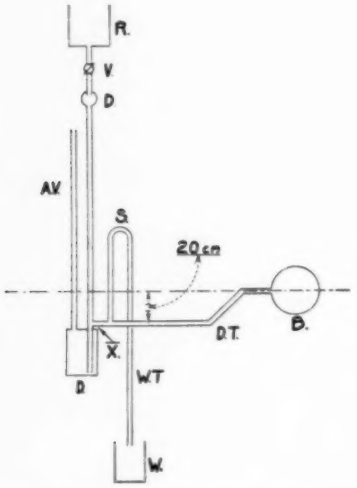

FIGURE 5. *Tidal Drainage of Munro and Hahn.*

vent reaches bladder height, the urine in the drainage tube is displaced backward into the bladder, and the fluid enters the latter and mixes with the urine. The apparatus fills up and empties as before, but the use of additional fluid ensures that it will drain and irrigate at regulated intervals. The irrigating effect of this fluid is dependent on the size of the bladder, and a bladder whose capacity is less than the volume of urine displaced backward from the drainage tube will not be irrigated. The apparatus shown in Fig. 5 is the tidal-drainage apparatus described in 1935 by Munro and Hahn[1] and used by them for the care of abnormal and infected bladders secondary to injuries and diseases of the spinal cord.

We have made a change in the apparatus which guarantees irrigation regardless of the size of the bladder being treated. The irrigating fluid, instead of entering the system at *X*, turns the corner and flows through its own tube, as the arrow indicates, toward the bladder (Fig. 6). It enters the system through one arm of a Y tube at the catheter. Thus, when the pressure in the apparatus rises higher than the bladder level the bladder immediately starts filling with irrigating fluid, because only the urine in the catheter needs to be displaced back into the bladder before irrigating fluid can enter. The urine from the bladder flows into the drain bottle (*D*) by its own tube (*DT*) and always in one direction, except for slight respiratory oscillations. This is an additional protection against retrograde infection. We believe that the Munro apparatus should be modified in this manner.

The irrigation obtained with this modified apparatus is not satisfactory for the care of grossly infected bladders, because there is always a mixture of irrigating fluid and urine in the bladder, and it is never irrigated rapidly. We have therefore made another addition to the apparatus to obtain one or more irrigations of the bladder after each tidal-drainage cycle (Fig. 7). Possibly the complicated appearance of this diagram will delay the use of such apparatus; but there is only the addition of a second system of reservoir and syphon activated by the suction created in the tidal-drainage cycle.

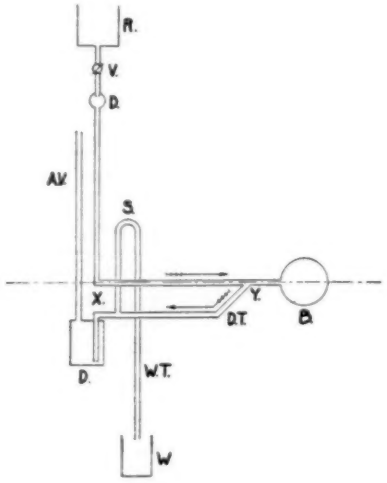

FIGURE 6. *Improved Tidal Drainage.*

When the bladder is being aspirated in the course of the operation of the tidal-drainage apparatus, suction is exerted through the irrigation tube (*IT*), which draws water from an irrigation bottle (*IB*) over the top of a syphon (S_2). The water from the syphon drops through a dropper (D_2) at a rate controlled by valve V_2, but the rate is slow enough so that the tidal-drainage apparatus still empties the bladder and the drain bottle. When syphon S_1 stops operating, however, syphon S_2 continues to supply clear irrigating fluid to the system; this rapidly fills the drain bottle and the bladder. The pressure is raised until syphon S_1 again empties the system. The remaining fluid in the irrigation bottle then runs through the system and drains into the drain bottle, at which point air enters the lower end of syphon S_2 and its action is stopped. By increasing the amount of

fluid in the irrigation bottle the bladder can be irrigated two, three or more times following each tidal-drainage cycle.

As the pressure in the apparatus increases during the irrigation cycle, air displaced back up the irrigation tube increases the back pressure, slows the rate of dropper D_2 and delays the last part of the cycle. This is undesirable, because the maximum pressure might then be maintained on the bladder for several minutes, or until dropper D_1 supplies enough fluid to start syphon S_1. Instead of a flap valve below dropper D_2 which would allow the air to escape and thus avoid this possibility, we have attached an expansion chamber (EC_2), made of Penrose tubing, 1¼ inches wide and 6 inches long, sealed at one end and attached to the irrigation tube at the other. Penrose tubing is ordinarily flat, but increased air pressure in the irrigation tube dilates it very easily, and back pressure on the drainage tube is thereby avoided. At the end of the irrigating cycle, the descending column of fluid in the irrigation tube aspirates the air from the Penrose tubing and makes the latter ready for the next cycle. Since infection entering through a flap valve would be more dangerous on the irrigating side of the apparatus, and because most flap valves will not stand sterilization, we believe that the closed expansion chamber is

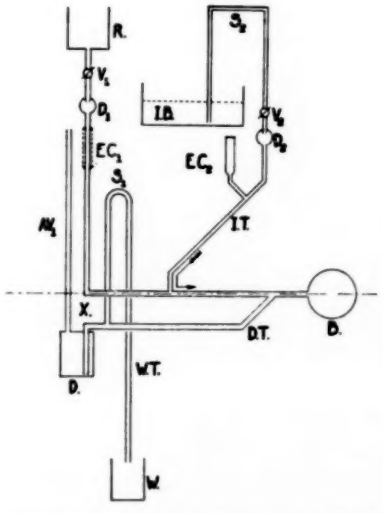

FIGURE 7. *Step in Adding Irrigation to Tidal Drainage.*

a better solution of this difficulty. A similar device should be placed below dropper D_1 if syphon S_1 is higher than 12 inches above the pubic level, but here the substitution of 6 inches of 1¼-inch Penrose tubing for the same length of regular tubing below dropper D_1 will suffice.

The adjustment of the height of syphon S_1 has not been satisfactory in some of the tidal-drainage models, because the rubber tube eventually flattens out at the peak of the syphon if it is hung over a bar or similar device. By taking an ordinary keyhole-shaped curtain ring, covering it with a rubber tube and attaching the syphon, a smooth loop is obtained without constriction of the tube at any point, with the added advantage that the syphon can be raised or lowered by as little as a millimeter at a time, and through a very wide range.

The next and slightly more complicated diagram (Fig. 8) illustrates the method of filling the irrigation bottle (*IB*). An additional reservoir (R_2) supplies fluid for dropper D_3, which is controlled by valve V_3. This fluid drips into the irrigation bottle at a slower rate than dropper D_2 runs, yet fast enough to fill it at regular intervals when syphon S_2 has run dry. The irrigation bottle can continue to fill only until the irrigating fluid reaches the lower end of air vent AV_2. Air can then no longer escape from the chamber and the irrigating fluid rises up the syphon arm (S_2) and up air vent AV_2 until these levels are the same as the level of the irrigating fluid in reservoir R_2. Dropper D_3 then stops running because the pressures on both sides of it are equalized. Syphon S_2 is then ready to be started by the aspirating action of syphon S_1 at the next tidal-drainage cycle.

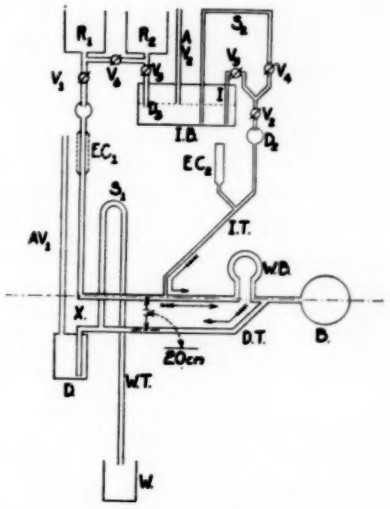

FIGURE 8. *Tidal Drainage and Irrigation, with Added Interval Irrigation.*

If syphon S_2 is thrown out of operation by closing valve V_4, and tube *I* is opened by turning valve V_5, an automatic irrigator is made that runs independently of the tidal-drainage cycle. After the pressure rises in AV_2, water will flow over the top of tube *I* because it is at all times at a level lower than the fluid in reservoir R_2. This starts an

irrigation through the irrigation tube without any aspirating action from the tidal-drainage portion of the apparatus. In this way, by the simple clamping and unclamping of a valve, the apparatus can be made to work as an interval irrigator. Valve V_6 may be used to disconnect reservoirs R_1 and R_2, if it is desired to irrigate with a different fluid from that used in the tidal-drainage apparatus.

In patients having bladder sensation, the use of irrigation with water even as cold as room temperature is uncomfortable, often enough so to awaken the patient at night. For this reason, as well as for the therapeutic advantages, we have used a thermostatically controlled water bath to heat the irrigating fluid just before it reaches the patient. This is done by leading the fluid through a circular glass tube (*WB*) immersed in water at approximately 100°F. The irrigation is slow enough to ensure adequate heat transference with about 18 inches of 5-mm. glass tubing immersed in the water. A very simple water bath, heated by a 40-watt electric-light bulb, has proved satisfactory.

The advantages of this apparatus are as follows:

The positive pressure on the patient's bladder is at all times controlled by the height of syphon S_1.

The irrigation following each tidal-drainage cycle dilutes both the contents of the drain bottle and of the bladder, and thus ensures complete cleaning of the apparatus at each cycle.

Because of the large volume of irrigating fluid used, antiseptics should not ordinarily be necessary; we have had very good results in a variety of bladder infections with boiled water alone.

No method of hand irrigation can equal this apparatus in economy of time, protection from overdistention and avoidance of the infection incident to disconnecting the catheter while irrigating with a bulb syringe.

Nursing care is simplified, because the only requirements are adequate amounts of irrigating fluid for reservoirs R_1 and R_2 and the removal of waste as it accumulates in the waste bottle.

Because of the copious irrigation, the apparatus will remain sterile for long periods of time; we see no reason for sterilizing it as often as is necessary with the tidal-drainage apparatus.

No special glass-blowing is required. The apparatus can be made from parts available in any hospital supply room.

The apparatus operates on hydraulic principles, and there are no moving parts or exposed metal parts to corrode; the energy that operates the device is supplied by the lifting of fluid when it is being poured into the reservoirs.

Summary

An improved method of bedside bladder drainage has been devised. The Munro-Hahn tidal-drainage apparatus is reviewed and modifications recommended. A device is described which when connected to the improved tidal-drainage apparatus may be used either to irrigate the bladder after each tidal-drainage cycle, or independently as an interval irrigator.

The construction details of the apparatus, together with a list of the necessary materials, will be included in the reprints of this paper.

References

1. Munro, D., and Hahn, J.: Tidal drainage of the urinary bladder: preliminary report of this method of treatment as applied to "cord bladders" with description of apparatus. *New Eng. J. Med.* **212**:229-239, 1935.
2. Laver, C. H.: An automatic bladder irrigator. *Guy's Hosp. Gaz.* **31**:71-74, 1917.
3. Hinman, F.: A simple apparatus for continuous and automatic bladder irrigation. *J. Urol.* **3**:281-287, 1919.
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5. *Idem:* The treatment of the urinary bladder in cases with injury of the spinal cord. *Am. J. Surg.* **38**:120-136, 1937.
6. McKenna, W. F.: Automatic bladder lavage with control of the factors of time, quantity and pressure. *J. Urol.* **40**:276-279, 1938.

NEW HAMPSHIRE MEDICAL SOCIETY

PROCEEDINGS OF THE
ONE HUNDRED AND FORTY-NINTH ANNIVERSARY
House of Delegates, May 13, 14 and 15, 1940

THE House of Delegates convened at the Hotel Carpenter, Manchester, on Monday evening, May 13, 1940, at 7:30, with Speaker Fred Fernald, of Nottingham, presiding.

The following members answered the roll call:

The President, ex-officio
The Vice-President, ex-officio
The Secretary-Treasurer, ex-officio
Chester L. Smart, Laconia
Earl J. Gage, Laconia
Francis J. C. Dube, Center Ossipee
W. J. Paul Dye, Wolfeboro
Norris H. Robertson, Keene
Leander P. Beaudoin, Berlin
Lewis C. Aldrich, Jefferson
Leslie K. Sycamore, Hanover
John C. Eckels, Lisbon
Frederic P. Lord, Hanover
Deering G. Smith, Nashua
Henry O. Smith, Nashua
Clarence E. Dunbar, Manchester
George V. Fiske, Manchester
Luther A. March, Nashua
Clarence E. Butterfield, Concord
Warren H. Butterfield, Concord
Charles H. Parsons, Concord
Fred Fernald, Nottingham
Frederick S. Gray, Portsmouth
James Sanders, Rye
Edna Walck, Dover
Henry C. Sanders, Jr., Claremont
Addison Roe, Newport

SPEAKER FERNALD: I declare a quorum present. I appoint the following for the Credentials Committee: Earl J. Gage, Warren H. Butterfield and Clarence E. Dunbar.

I appoint the following for the Committee on Officers' Reports: Norris H. Robertson (chairman), Deering G. Smith and Frederick S. Gray.

I appoint the following for the Committee on Memorials and Communications: Chester L. Smart, George V. Fiske and James Sanders.

Is the Committee on Credentials ready to report?

DR. CLARENCE E. DUNBAR: We find the credentials are all in order.

SPEAKER FERNALD: The minutes of the last meeting are published in the 1939 transactions of the New Hampshire Medical Society. What is your pleasure about the reading of these minutes?

DR. FRANCIS J. C. DUBE: I move that the reading of the minutes be omitted.

This motion was seconded and was carried.

SPEAKER FERNALD: Our next order of business will be the report of the Secretary-Treasurer.

Report of the Secretary-Treasurer

The following report for the year 1939 is submitted:

MEMBERSHIP, DECEMBER 31, 1939

PAID

Belknap County	30
Carroll County	15
Cheshire County	29
Coos County	40
Grafton County	65
Hillsborough County	127
Merrimack County	75
Rockingham County	54
Strafford County	29
Sullivan County	19
Not in county society	6
	489

UNPAID

Affiliate Members	26	
Honorary Members	11	
		37
Total		526

The total membership on December 31, 1938 was 531.

FINANCIAL STATEMENT

RECEIPTS

January 1, 1939—balance forward	$1,063.47
Net receipts 1939 annual meeting	83.38
Belknap County	192.00
Carroll County	96.00
Cheshire County	186.00
Coos County	222.00
Grafton County	384.00
Hillsborough County	786.00
Merrimack County	444.00
Rockingham County	306.00
Strafford County	174.00
Sullivan County	114.00
Refund, Cancer Commission	17.93
Members not in county societies	36.00
Benevolence Fund (Women's Auxiliary)	50.00
Cash received at annual meeting	49.00
Subscription (*New England Journal of Medicine*)	3.00
	$4,206.78

EXPENDITURES

New England Journal of Medicine (tabulation)	$17.74
New England Journal of Medicine (transactions)	534.94
New England Journal of Medicine (journals)	567.52
New England Journal of Medicine (full subscription, one member)	3.00
Carleton R. Metcalf	400.00
Bridge and Byron (printing)	67.25
Envelopes, stamps and postcards	128.67
Eagle and Phoenix Hotel Co. (committee lunches)	21.05
Robert O. Blood, treasurer (telegrams and telephone calls)	22.51
Western Union (telegrams to Washington)	9.18
Women's Auxiliary	100.00
Benevolence Fund	553.00
Frank J. Sulloway (retaining fee)	100.00
George C. Wilkins (Cancer Committee)	50.00
Warren H. Butterfield (refund on one member)	6.00
Concord Photoengraving (half-tone cuts)	27.42
The Barwood Press (Commonwealth Fund)	19.71
Dartmouth College (Committee on Medical Education and Hospitals)	9.75
Deering G. Smith (expenses, A. M. A. meeting)	143.36
Eric M. Matsner (expenses, annual meeting)	25.00
Louis A. Buie (expenses, annual meeting)	98.00
W. Wayne Babcock (expenses, annual meeting)	27.70
Charles W. Tobey (expenses, annual meeting)	44.25
Madeline A. May (stenographer, annual meeting)	247.13
Deering G. Smith (dues collected at annual meeting)	35.00
Warren H. Butterfield (dues collected at annual meeting)	7.00
Wendell P. Clare (dues collected at annual meeting)	7.00
	$3,272.18
Balance, January 1, 1940, in checkbook	1,210.84
	$4,483.02
Net receipts, 1938 annual meeting, deposited 2/21/39	246.24
Dues for 1938, deposited 1/20/39	30.00
	$4,206.78

The Society is in good financial condition with all debts paid and a balance of $1210.84 in the bank on December 31, 1939.

The Benevolence Fund on the same date amounted to $2347.06. Of this amount the principal is $2117.19 and the accrued income $229.87. During the past year we have received from the Women's Auxiliary $50 for this fund. Since January 1, 1940, we have allotted $1000 to the Permanent Fund held by the Trustees.

One of the officers of the Society died during the past year: Alpha H. Harriman, of Laconia, a trustee emeritus.

The President has the privilege of appointing two officers. Dr. Woodman chose for the Anniversary Chairman, Ezra A. Jones, of Manchester, and for the member of the New England Medical Council, David W. Parker, of Manchester.

A year ago the House of Delegates made the following recommendations, which have been carried out:

1. A group of five ophthalmologists has advised the State Department of Public Welfare concerning the care and treatment of the blind.

2. The Committee on Amendments to the Constitution and By-laws was asked to compare our constitution and by-laws with those of the American Medical Association.

3. Fifty dollars was sent to the Committee on the Control of Cancer for the furtherance of its work. Another $50 was left with the Committee on Child Health for use in the distributing of its literature.

4. The State Board of Health was queried about the possibility of providing hospitalization and fever treatment for neurosyphilitic patients. The Board reported that it had received a grant-in-aid of $2000 for this purpose from the United States Public Health Service.

5. Members of Congress were advised that the Society is opposed to the Wagner Bill.

6. The general hospitals in New Hampshire were notified that the House of Delegates approved routine blood examinations for syphilis on all patients.

A report has recently been issued on the results of the premarital tests for syphilis. The statute provides for a blood test with a statement by the physician that the applicant is not infected with syphilis or in a state which may become communicable. A positive blood test in itself does not prevent marriage.

During the first twelve months of enforcement there were 10,363 applicants. Eighty-one applicants gave positive tests; 47 of these were residents of New Hampshire.

The report shows a decrease in marriages: 5065 in 1939, as compared with an average of 7289 during the years 1933–1937. The entire decrease, however, was due to the fact that fewer residents of Massachusetts came to New Hampshire to be married.

On October 1, 1939, every physician who had been sent a positive report was asked:

(*a*) Was the patient allowed to be married?
(*b*) Was he [the physician] treating the patient?
(*c*) If not, did he know what had become of the patient?

This information was obtained on 70 of the applicants. Forty-nine had been allowed to marry. Of the 21 not allowed to marry, 11 were women. Four of the 11 women were forty-five years of age or over, that is, beyond the usual child-bearing period. None of the applicants who were denied marriage had been aware of their infection. Seven of the 21 who were denied marriage had been placed under treatment in consequence of the premarital blood test.

Of the 49 applicants who were allowed to marry, 4 were under active treatment before applying for the premarital certificate. Of the 45 not previously under treatment, 8 were placed under treatment because of the test.

The premarital law protects the future child by notifying the woman and her physician of the infection. If a mother has adequate treatment during pregnancy the child will be healthy.

It is obvious that during the first year there was not an adequate check-up on positive cases, but since October 1, 1939, — the first anniversary, — the State Board of Health has kept a close check on these cases so that practically every positive case is now getting treatment.

The law has been effective in discovering syphilis in persons unaware of infection, and it has had an excellent educational effect on the public and on the physicians. The physicians should see to it that all these positive cases are treated.

A suggestion has been made that our meetings revert to their former type by having papers read during the

mornings by members of the Society in place of the present round-table discussions. I believe that it is difficult to get a member of the Society to write a paper, and still more difficult to get him to write a good paper. Furthermore, I think that our members get more out of round-table conferences than they do out of set papers. However, I bring the matter to your attention because I have been asked to do so.

Governor Murphy asked us to name two members of the Society to serve on the Committee on Infantile Paralysis. Dr. Woodman appointed Carl R. Friborg, of Manchester, and Ralph W. Hunter, of Hanover. These appointments should be confirmed by the House of Delegates.

We were also asked to appoint someone to serve on the committee that is revising the *Pharmacopoeia*. Dr. Clarence J. Campbell, of Dartmouth College, who is attending this convention, offered to represent us as well as his college. Dr. Campbell's appointment should also be confirmed by the House of Delegates.

CARLETON R. METCALF, *Secretary*.

DR. NORRIS H. ROBERTSON: The Committee on Officers' Reports would emphasize that the premarital test is for the purpose of finding new cases, not of preventing marriage, and of treating these new cases and thereby preventing congenital syphilis.

We recommend that the medical certificate be confined to the requirements of the State law.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

DR. ROBERTSON: The committee recommends the continuation of the round-table discussions.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

DR. ROBERTSON: The committee recommends the confirmation of the appointments of Carl R. Friborg, of Manchester, and Ralph W. Hunter, of Hanover, to serve on the Committee on Infantile Paralysis.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

DR. ROBERTSON: The committee recommends the confirmation of the appointment of Clarence J. Campbell, of Dartmouth College, to represent the Society on the Committee for the Revision of the *Pharmacopoeia*.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

DR. ROBERTSON: The committee recommends the confirmation of the appointment of Andrew L. MacMillan, Jr., of Concord, to the Medical Advisory Committee of Eye Conditions.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

SPEAKER FERNALD: We will now hear the reports of the councilors.

Belknap County

The Belknap County Medical Society held six monthly meetings this past year, from November to April inclusive, with a very good attendance.

Two outstanding speakers at the meetings were Dr. Frazer B. Gurd, of Montreal, and Dr. Cadis Phipps, of Boston.

The president, Dr. J. B. Woodman, and the secretary, Dr. C. R. Metcalf, of the New Hampshire Medical Society, were guests at one of the meetings.

The society has gained three new members and has lost one member by death.

CLIFTON S. ABBOTT.

Carroll County

The Carroll County Medical Society had two meetings scheduled for the year. Due to unavoidable conditions, however, the usual fall meeting was omitted. We are now looking forward to our spring meeting, which will be held shortly before that of the New Hampshire Medical Society.

While our group is small in number, our membership is nearly 100 per cent, and we believe that our gatherings are successful.

CHARLES E. SMITH.

Cheshire County

The Cheshire County Medical Society held two meetings during the past year: one social and one business meeting.

The annual meeting was held in the Doctors' Library, Elliott Community Hospital, December 4, 1939. At this meeting the officers for the coming year were elected, routine business was taken up, and three new members were admitted. This was one of the best attended meetings that Cheshire County has had in several years. Interesting papers were read by visiting and local men, followed by lengthy discussions.

At the conclusion of the meeting, luncheon was served under the supervision of the hospital dietitian.

JOHN J. BROSNAHAN.

Coos County

The Coos County Medical Society is in good condition. We have two meetings a year, and they are always well attended, with much interest shown by the members.

A committee from this society is assisting the County Fiscal Agent in his efforts to keep medical relief within reasonable bounds.

Our membership is gradually increasing.

RICHARD E. WILDER.

Grafton County

The thirty-sixth annual meeting of the Grafton County Medical Society was held October 12, 1939, at the Mary Hitchcock Memorial Hospital.

Dr. Putnam, in behalf of the censors, presented the names of Radford C. Tanzer, Arthur E. MacNeill and John S. Lyle, all of Hanover, and these applicants were duly voted into membership.

The Committee on the Farm Security Insurance Program reported that it had met with similar committees from Sullivan and Cheshire counties, and that a fee schedule had been drawn up for use in cases treated under this program. The schedule was presented to the society and received without dissent. Recommendations from the Committee on Medical Economics of the New Hampshire Medical Society relative to the program were read and discussed. It was pointed out that it would be advisable in any statement sent out concerning the plan to state definitely what services were not included in the plan (such as laboratory and x-ray examinations) as well as the procedure for handling these extras. The committee was instructed to continue its study in co-operation with the committees from the other two counties and to report back to the society before final action should be taken.

President McKinlay appointed the following committees:

Nominating: W. F. Putnam, H. C. Pickwick, H. L. Johnson.
Public Health and Legislation: E. M. Miller, H. N. Kingsford, J. G. Bogle.
Advisory to Women's Auxiliary: the president, H. T. French, W. F. Putnam.
Auditors: R. E. Miller, C. C. Stewart.

The Nominating Committee brought in the following nominations, which were duly confirmed:

President: J. C. Eckels.
Vice-president: S. M. Gundersen.
Secretary-treasurer: L. K. Sycamore.
Censor: B. Beattie.
Member of Committee on Medical Jurisprudence: J. F. Gile.
Delegate: L. K. Sycamore.

The scientific program consisted of a highly informative discussion by Dr. Chester M. Jones, of Boston, on "Medical Aspects of Gall-Bladder Disease."

Following the meeting, luncheon was served in the hospital dining room.

On December 18, 1939, a special meeting was convened to give final approval to the program of general-practitioner care for clients of the Farm Security Administration. L. K. Sycamore, for the committee, reported that the program was ready to be put into effect January 1, 1940, in Cheshire and Grafton counties, and that Sullivan County had withdrawn from the plan. The regulations drawn up by the intersociety committee were discussed, and a few minor changes suggested. It was then moved and seconded that "the society approve the program for initiation of the plan in Grafton County as of January 1, 1940." It was voted that L. K. Sycamore be named auditor for the Farm Security medical program in Grafton County, and that the president appoint two other members to a Reference Committee. A. W. Burnham and E. M. Miller were later appointed in this capacity by the president.

The regular spring meeting of the Society was held at the New Hampshire Sanatorium, Glencliff, on Thursday, April 18, 1940. The business meeting was followed by a scientific session, which consisted of a "Symposium on Tuberculosis," conducted by Drs. R. M. Deming, Frank Seligson and M. D. Tyson. Luncheon was served.

A. W. Burnham.

Hillsborough County

The Hillsborough County Medical Society held two very interesting meetings.

The annual meeting of the Hillsborough County Medical Society was held at Milford on November 14, 1939, at which four new members were admitted and four applicants were rejected. The refugee-physician problem provoked a very free discussion. Dr. J. B. Woodman, president of the New Hampshire Medical Society, was present and spoke at length on the Wagner Bill.

After luncheon was served, two papers were presented. Dr. Donald S. King, of Boston, spoke on "Serum and Sulfapyridine in the Treatment of Pneumonia," and Dr. Channing C. Simmons, of Boston, gave a talk on "Some Points in the Diagnosis and Treatment of Cancer."

The twenty-eighth annual meeting was held at the Nashua Country Club, on April 16, 1940. The secretary, Dr. D. G. Smith, told of the aims of the National Physicians' Committee for the Extension of Medical Service. Following a discussion by the members, it was unanimously voted to approve the committee and its work, that $100 be given the committee and that copies of the resolution be sent to Senators Bridges and Tobey.

An amendment to the constitution was proposed by Dr. Smith, making citizenship in the United States one of the necessary qualifications for membership in the Hillsborough County Medical Society. It was said that Dr. Woodward, director of the Bureau of Legal Medicine and Legislation of the American Medical Association, had stated that the amendment would not conflict with the constitution and by-laws of either the New Hampshire Medical Society or the American Medical Association.

Dr. Biron told of the effort of the American Society of Clinical Pathologists to curtail the activities of state laboratories.

After luncheon a "Symposium on Arterial Disease" was presented by Drs. Burton E. Hamilton, Lawrence B. Ellis and Reginald H. Smithwick, all of Boston.

T. F. Rock.

Merrimack County

The Merrimack County Medical Society held four meetings during the past year:

On July 5, 1939, a meeting was held at the Franklin Country Club, with the vice-president, Dr. Frank H. McQuade, presiding. The speakers were Dr. James B. Woodman, and Dr. Samuel R. Detweiler, of Columbia University College of Physicians and Surgeons. Dr. Arthur F. Wright, of Bradford, was elected a member of the society.

On October 4, 1939, a meeting was held at the Eagle Hotel in Concord. Mr. Lloyd C. Fogg, of the University of New Hampshire, spoke and showed slides on the subject, "The Effect of Irradiation on Tumors of the Breast." It was voted to request the Speakers' Bureau to furnish speakers to conduct public debates on the Wagner Bill if occasion should arise.

The new members elected into the society were: F. J. Kropp, of Franklin; Seth F. H. Howes, of Concord; Herbert A. Barnes, of Antrim; and John H. Branson, of Concord.

On January 3, 1940, the annual meeting was held at the Eagle Hotel in Concord. In the absence of Drs. McQuade and Shields, Dr. Dolloff was appointed acting president by the secretary. The following officers were elected:

President: Frank J. McQuade, Franklin.
Vice-president: MacLean J. Gill, Concord.
Secretary-treasurer: Warren H. Butterfield, Concord.
Censors: Joseph M. McCarthy (3 years) Concord; Harold D. Levine (2 years) Bristol and Concord; Henry H. Amsden (1 year) Concord.
Delegates: Warren H. Butterfield, Concord; Clarence E. Butterfield, Concord; Charles H. Parsons, Concord; William P. Clough, New London.
Auditors: Philip M. Forsberg, Concord; Walter C. Rowe, Concord.

Dr. J. Kenneth McLeod, of Penacook, was elected a member of the society and Dr. Ernest H. Joy, of New Jersey, was reinstated. Dr. Sibley Morrill was voted into affiliate membership. Dr. James B. Woodman spoke briefly on the Wagner Bill. Dr. John Wheeler, of the State Board of Health, discussed district public-health reorganization in New Hampshire.

On April 3, 1940, a meeting was held at the Eagle Hotel in Concord. Dr. James M. Baty, of Boston, spoke on "Preventive Measures in Infancy."

It was voted to have the July meeting in Franklin on July 10, 1940.

HENRY H. AMSDEN.

Rockingham County

The Rockingham County Medical Society held two meetings during the past year.

The first was held at the Exeter Hospital and the second at the Portsmouth Hospital. At these meetings, various case histories were read and discussed and x-ray plates exhibited. Patients were presented to show the results of operation and treatment. Luncheon was served at the hospitals.

HERBERT L. TAYLOR.

Strafford County

The Strafford County Medical Society had, for the year 1940, 28 active members and 6 affiliate members.

The annual meeting was held on October 5, 1939, at the American House in Dover. It was the one hundred and thirty-second meeting of this society and was attended by 27 members and guests.

Dr. J. B. Woodman presented the problems of the New Hampshire Medical Society. Drs. C. W. McClure and I. R. Jankelson, of Boston, spoke on "Gastroscopy and Its Use in Differential Diagnosis."

The spring meeting is planned for April 17, 1940, at the American House in Dover, at which Dr. I. J. Zimmerman, of Manchester, will speak on "Infections of the Urinary Tract."

There were no deaths among the members during the fiscal year.

J. A. HUNTER.

Sullivan County

The Sullivan County Medical Society convened four times during the past year, each time in Claremont, and the occasion was marked in every instance by a good attendance. Two of these meetings were for purely business purposes, while the other two were devoted chiefly to the discussion of scientific subjects.

In the summer we were fortunate in having as our guest Dr. Percy S. Pelouze, of Philadelphia, who talked on "The Treatment of Gonorrhea."

In the fall we were entertained at the Claremont General Hospital, to which institution we are greatly indebted for a most excellent luncheon. At this time we had the annual election of officers and a paper was read by Drs. Harry C. Sanders, Jr., and C. Carter Hamilton, of Claremont, on "X-Ray Diagnosis of Malignancy." Dr. Emery M. Fitch opened the discussion.

We were favored by the presence of Dr. James B. Woodman, who talked on the present-day problems of the New Hampshire Medical Society, as well as those of the American Medical Association, with special reference to the Wagner Bill and the proposed building of government hospitals in New Hampshire.

EMERY M. FITCH.

DR. ROBERTSON: Your committee has reports from all the councilors, for the first time in many years, due to the untiring efforts of Dr. H. H. Amsden.

It recommends the adoption of these reports.

This motion was seconded and was carried.

SPEAKER FERNALD: Have there been any affiliate members voted upon in any counties?

DR. DEERING G. SMITH: The Hillsborough County Medical Society voted an affiliate membership to Dr. P. J. McLaughlin. I move that he be made an affiliate member of the Society.

This motion was seconded and was carried.

DR. BUTTERFIELD: I nominate Dr. Sibley G. Morrill, of Concord, for affiliate membership.

This motion was seconded and was carried.

DR. ROBERTSON: I move that Dr. Elizabeth B. Reed, of Keene, be made an affiliate member.

This motion was seconded and was carried.

SPEAKER FERNALD: As the next order of business come the reports of the standing and special committees.

I should like to have a report from Dr. Henry O. Smith on the Special Committee for the Sesquicentennial.

Report of the Committee to Formulate Plans for the Observance of the One Hundred and Fiftieth Anniversary of the Society

The committee recommends:

1. That the anniversary be observed in connection with the regular meeting of the Society in 1941;
2. That the sketch of the Society to 1854, which was prepared and read in 1891 by Dr. L. Bartlett How, be edited, amended and brought nearer to date, that it contain a portrait of Dr. Josiah Bartlett, and that it be printed for distribution to the members of the Society prior to the meeting;
3. That an exhibit of old medical books, instruments and other objects of interest be on display; that the Dartmouth Medical School be asked to cooperate in this exhibit, and that it be under the direction of Dr. Fred E. Clow;

4. That Rev. William Porter Niles, son of Rt. Rev. W. W. Niles, who offered the opening prayer at the meeting in 1891, be requested to perform that duty in 1941;

5. That on the evening of the first day of the general session, an entertainment be provided, under the direction of the Manchester Medical Society, but financed by the New Hampshire Medical Society;

6. That the literary program be given on the afternoon and evening of the second day of the general session;

7. That the selection of the speaker to give the chief address be made by the secretary of the Society;

8. That the presidents of the other five New England state medical societies be invited to give five-minute talks;

9. That the appreciation of Dr. Josiah Bartlett, pronounced by Dr. Thomas W. Lucee, his final words to this society as its president, be read by Dr. Marion Fairfield;

10. That a paper on "The Doctor of One Hundred and Fifty Years Ago" be prepared and read by Dr. H. H. Amsden;

11. That a paper, "The Leaders of Old," be presented by Dr. F. E. Clow; and

12. That so much as may be required of the sum of $1000 be placed at the disposal of the Secretary-Treasurer to defray the expenses of this observance.

HENRY O. SMITH.

DR. ROBERTSON: The Committee on Officers' Reports wishes to express its appreciation for the detailed plan presented by this committee.

We recommend that this report be considered point by point.

Each recommendation was seconded and was carried.

Report of the Committee on Amendments to the Constitution and By-Laws

No suggestions for changes in the constitution and by-laws of the New Hampshire Medical Society have been submitted to your committee during the year. None have been originated by the committee.

FRED E. CLOW,
LOUIS W. FLANDERS,
PHILIP MCQUESTEN.

DR. ROBERTSON: The Committee on Officers' Reports notes the failure of the Committee on Amendments to the Constitution and By-Laws to compare our constitution and by-laws with those of the American Medical Association.

I move the adoption of this report.

This motion was seconded and was carried.

Report of the Committee on Social and Mental Hygiene

During the past year, from April 1, 1939 to April 1, 1940, 79 mentally deficient persons were admitted to Laconia State School; 5 were readmitted, and 49 discharged; 15 women and 6 men had legal sterilizing operations performed.

The bed capacity of Laconia State School is 616; there are in the institution 640, and out on parole under supervision, 73; applications for admission from 13 males and 40 females are on file.

In a further effort to make room, some exchanges of older patients from the institution for younger and more trainable individuals have been made with the counties.

In accordance with the marriage law, 50 children from the public schools were reported as feeble-minded to the Board of Health by the Department of Education. It is stated that of the 400 children examined psychometrically in the Mental Hygiene Clinics of the State Hospital, 150 were found to be mentally deficient.

The insane, epileptic and feeble-minded persons of New Hampshire constitute a group on which there are no special statistics; they, therefore, compare unfavorably with lumber, highways, summer visitors and shoes, which are all statistically enumerated. There is no point of departure from which to report an increase or decrease per capita of population.

Thirty-two patients with neurosyphilis were admitted to the New Hampshire State Hospital during the year 1939. A total of 307 general inductothermy treatments were given to 31 patients. Of this group, 19 patients had general paresis, 5 tabes dorsalis, and 4 interstitial keratitis and neurosyphilis; the others suffered from other types of neurosyphilis. Of the 31 patients treated, 21 were able to leave the hospital in an improved or recovered condition.

The State Hospital has been co-operating with the State Department of Venereal-Disease Control, whereby patients in the clinics can be referred to the State Hospital for neurological check-ups and spinal-fluid studies. If indicated, arrangements have also been made for selected patients to receive fever treatment in the hospital. After completion of the fever treatment the patients are referred back to the clinics for follow-up therapy.

New methods of treatment in tabes dorsalis and paresis, which consist of combinations of intravenous, intraspinous and fever therapy, are being investigated at the hospital, with what appear to be promising results.

Between April 1, 1939, and April 1, 1940, the State Hospital admitted 686 patients, 71 more than the previous year. Of these 193 were readmissions. Nevertheless, they contributed to the already overcrowded conditions. During the same period 571 patients were paroled and 382 were discharged.

The State Hospital has kept abreast with modern psychiatric curative agencies; treatment with Metrazol was used in 163 cases. While some of the patients have lapsed after making marked improvement, many have been greatly benefited and some probably permanently relieved, showing this treatment to be a valuable aid in treating the mentally ill. Eight patients were given the legal sterilizing operation.

The staffs of the Mental Hygiene Clinics of the State Hospital have examined and given helpful advice to 843 patients in four of the principal cities of the State. There has been some increase in the Social-Service Department personnel at the State Hospital and a second assistant physician has been added to the staff at Laconia State School.

Both state institutions admit those suffering from the convulsive disorders. If in the future New Hampshire should have an institution especially designed and administered for the care of this class of patient, it would be in keeping with the best practices in many states. It would

relieve other institutions of a disturbing element and assure special care to those suffering from a most pathetic affliction.

The last Legislature made an appropriation for some reconstruction and some new construction. Plans and preparations are now under way looking toward the creation of needed general hospital facilities at the State Hospital and additional room at both institutions.

BENJAMIN W. BAKER,
CHARLES H. DOLLOFF,
JOHN B. MCKENNA.

DR. ROBERTSON: The Committee on Officers' Reports deplores the crowded conditions in the two state institutions, and approves the establishment of a separate institution for the care of those suffering from convulsive disorders.

We ask the Committee on Social and Mental Hygiene to present plans for the enumerating of the mentally deficient at the next annual meeting.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

Report of the Committee on Control of Cancer

Both the public and the physicians of New Hampshire are becoming more conscious of the early symptoms that may indicate cancer, and this recognition is followed by earlier treatment.

There is still much room for improvement in both the attitude of the public and that of some physicians. The possibility of cancer in any growth in a visible location, such as the skin or in the mouth, seems to be quickly recognized by physicians, but unfortunately there are still needless delays in examining patients who bleed between periods, after the menopause, and from the rectum and bladder. Women who are flowing abnormally should not be denied an examination on account of flowing.

The public is apparently reacting to the educational efforts of the Women's Field Army. Year by year more families are becoming aware of the danger due to neglect, and many more people are presenting themselves at doctors' offices for examination. We believe that physicians must do everything in their power to educate and advise the public regarding the curability of cancer, with particular reference to the need of early diagnosis and early treatment. The Pathological Laboratory at Hanover gives us the encouraging information that more biopsies from early cancer are appearing from all parts of the State than ever before.

Active state-wide efforts for cancer control did not begin until 1933, and it is to be expected that it will take about ten years of this activity before we can look for a drop in the mortality rate. We hope it may appear before that date.

A few years ago the State Board of Health made cancer a reportable disease for the purpose of ascertaining, if possible, the number of existing cancer cases within the State. We regret the lack of co-operation among physicians in refusing or neglecting to fill out the simple yellow forms and sending them to the State Board of Health. These names are never publicized, nor are the patients called on or contacted in any way as a result of their names' being placed on file. We dislike to admit that a fairly accurate census of this sort has been impossible on account of a lack of co-operation on the part of the physicians of the State.

During the past year, the committee has sent out three letters to every physician in New Hampshire. As usual, these letters have covered very briefly some important points in cancer diagnosis or treatment.

The first letter was sent out January 9, 1940, and was devoted to a discussion of more careful diagnosis in cases of uterine flowing before any radical operation is considered. The second letter, sent out in April, was a further discussion of the same subject, and there were included brief histories of three cases that had occurred immediately after the previous letter, where inadequate examinations had been made. The final letter was sent in May and briefly discussed malignant bone tumors. The committee continues to have occasional requests from other states for copies of these educational letters.

Your committee co-operates whenever necessary with the New Hampshire Cancer Commission and with the Women's Field Army of the American Society for the Control of Cancer.

We have spent, for printing and postage, $44.32 of the $50 appropriated. The balance, $5.68, has been returned to the Treasurer, and we request another appropriation of $50 for the coming year.

GEORGE C. WILKINS,
HOWARD N. KINGSFORD,
GEORGE F. DWINELL.

DR. ROBERTSON: The Committee on Officers' Reports would emphasize the request for better reporting of cases of cancer to the State Board of Health. We recommend the appropriation of $50 for the work of this committee.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

Report of the Committee on Maternity and Infancy

In accordance with the practice of the past six years, the Committee on Maternity and Infancy has prepared an annual report on maternal deaths, infant deaths and stillbirths. This study, as formerly, was done in co-operation with the Division of Maternal and Child Health of the State Board of Health.

As a new activity this year the committee sent individual letters to the physicians reporting maternal deaths. Comments, suggestions and a report of the findings in each case were included in the letters.

As in the past, all information received was entirely confidential. Only one person had knowledge as to the identity of the physician, hospital or patient. That person was the Director of the Division of Maternal and Child Health, acting as agent for the committee in carrying on this study.

Six meetings of this committee were held. At each meeting the information collected was gone over carefully, each case being studied from all possible angles. The material used consisted of a copy of the death certificate and answers to the questionnaire sent to the physician who reported the maternal death, and in most cases, information was obtained by a personal interview between the agent of the committee and the physician in charge of the case. Wherever possible the hospital record was studied and the findings were included in the report to the commit-

tee. The committee studied all cases by number. In each the letter sent to the physician was transmitted through the Division of Maternal and Child Health and contained only the decisions and opinions of the committee members.

Infant deaths and stillbirths were studied from answers to questionnaires and information obtained from the death certificates. These studies were obviously not so exhaustive as those on maternal deaths.

Statistics of the United States Bureau of the Census show that, on comparing the maternal death rates of 1934-35 with those of 1936-37, there was no significant change in the figures for New Hampshire. By this is meant of course that a lowering of the rate from 5.4 per 1000 live births in 1934 to 4.3 in 1937 is not significant from a statistical viewpoint. Nevertheless it is encouraging to note that there has been a downward trend in the rates from 1930 onward, from a rate of 6.2 to 3.1 in ten years. It is hoped that this downward trend will continue.

In 1939 there were 25 maternal deaths. The chief causes of death were found on analysis to be in the following order: toxemia of pregnancy; cesarean section, with complications; accidents of pregnancy; miscellaneous causes.

The committee is gratified to note that there are fewer cesarean sections being performed. It can be seen, however, that toxemias of pregnancy are still the greatest factor in maternal deaths in New Hampshire. There were 6 autopsies performed, which is an encouraging improvement over findings of the previous year, which showed only 2 complete autopsy records.

Twenty, or four fifths of the cases, were urban, and the greatest number of deaths occurred in Hillsborough County, where the largest center of population exists.

For the most part, hospital records were more complete than formerly, although there still remains much to be done by the hospitals in reference to requiring more adequate histories and records. A number of the hospitals required written consultations on cesareans, while others had no record of the operative procedure. Most physicians had prenatal office records on their cases.

It was found that the forceps is used too frequently, with apparent failure to distinguish between high-, mid- and low-forceps application. There seems to be confusion in the use of terms in this procedure. The committee has repeatedly made recommendations in regard to forceps; namely, that high-forceps be eliminated entirely, that mid-forceps be eliminated so far as possible, and that forceps should not be applied until the head is on the perineum.

In the study of infant deaths under one year it was found that the rate was 39 per 1000 live births. This is lower than the rate for 1938, which was 48.

The committee believes that not enough autopsies are performed after the death of young infants. A true diagnosis is frequently obscure, especially in the newborn.

The number of infants dying under one year of age in 1939 was 307. From a study of causes it seemed obvious that prematurity was the chief cause of death. It was shown that it was the predominant cause of death for the first day, and that after this time it became, of course, less prominent. There was no record of the weight of the infant given on the certificate, so the accuracy of the diagnosis is uncertain. The variety of causes of death in the infant increased directly with the length of time the child lived. Toward the end of the first year the chief cause of death shifted from prematurity to bronchopneumonia. It is of interest to note that there were 9 infants who died of suffocation. It is unbelievable that a preventable condition of this type should take that toll.

A study of stillbirths was made from an analysis of death certificates and from answers submitted by physicians to questionnaires. This study revealed that there were 211 stillbirths during the calendar year of 1939. The leading cause of death was given as prematurity.

As a result of these studies the committee recommends that there be an improvement of segregation of maternity patients from other patients in hospitals; that there be provision of isolation facilities for infected cases; and that hospitals provide apparatus for resuscitation and for control of hemorrhage. Vaginal examinations should be performed during labor only under the strictest aseptic technic, and then only when labor is not proceeding normally. Rectal examinations should be done instead. The prevention of toxemias is to be attempted through thorough and vigilant prenatal care, but if symptoms do arise, therapeutic methods should be used which are recognized as effective.

The committee believes that there are still too many cesarean sections being performed in New Hampshire without clear-cut indications, without proper consideration of the facts in the case, and without competent consultation. The committee realizes that the question of indications for cesarean sections is a more or less controversial one, and that there is rarely an absolute indication. However, the committee believes that there are a few indications that are fairly clear cut. In general the committee believes that cesareans should not be planned until the onset of labor except in the following conditions: previous section; blocking of the inlet due to soft-tissue tumor or due to extreme bony deformity; and carcinoma of the cervix.

Fairly definite indications in which a section would be warranted as the condition arises in the last trimester of pregnancy or at the time of labor are as follows:

Excessive hemorrhage: placenta previa, especially in all central previas or in marginal previas where the bleeding is uncontrollable by other methods or by the descent of the head — it is the general consensus that the use of the Voorhees' bag is desirable; premature separation of the placenta, where hemorrhage is severe in a patient who has a partial or complete separation of the placenta and who is not in labor.

Marked disproportion, where the disproportion is evidently due to marked difference in size of the baby's head and the pelvic inlet, and then only after a reasonable test of labor has been tried. A test of labor is usually designated as labor which is accompanied by good pains at three- to five-minute intervals, which have been recurring for from six to eight hours, resulting in some dilatation of the cervix but no descent of the head. There is too frequently the tendency to early intervention by doing a section before the patient has had a chance to demonstrate the effectiveness of labor. This is particularly true in primiparas.

Toxemias of pregnancy. The committee believes that there is a definite place for cesarean sections in the delivery of cases that have not done well under proper treatment, chiefly in a primipara whose cervix is rigid and where there is a possibility of a disproportion, and where fairly rapid emptying of the uterus is necessary or desirable. In all cases of toxemias, multiparous or primiparous, where the head is low and where the cervix will permit the

rupturing of the membranes, the committee is certain that induction of labor by this means with delivery from below is desirable.

The committee repeats that too many cesarean sections are being done that should not be done unless there are sufficient indications, and then only under proper circumstances with written consultations recorded on the hospital records. This is also in accordance with the requirements of the American College of Surgeons.

The committee believes that physicians should not depend on making a diagnosis of disproportion by the use of a flat x-ray plate of the abdomen. There is no value whatsoever by such a procedure, and it may lead to a false sense of security. Clinical judgment in most cases is preferable. The committee does however recognize the value of newer methods of x-ray pelvimetry, but recommends that this be relied on only when done by a competent radiologist.

The committee wishes to reiterate that an accouchement forcé done for any condition whatsoever is to be condemned. There is no justification for such a procedure under any circumstances.

The manual removal of a placenta is unjustifiable, and there is no excuse for such a practice unless there is excessive and uncontrollable bleeding. If there is a retained placenta but the bleeding is not excessive, removal should not be attempted under twelve hours. The committee recommends that doses of 1 cc. of pituitrin be given at two-hour intervals, accompanied by the Credé maneuver only at the same time the pituitrin is given.

The committee recommends that chloroform be not used for deliveries or labor when ether can be obtained. It is a well-known fact that chloroform is more toxic and more treacherous than ether.

It is recommended that physicians attempt to secure autopsies on stillbirths in order that an accurate picture be obtained as to the cause of death. It is also desirable that autopsies be secured following infant deaths and maternal deaths when the cause of death is obscure.

Where hospital facilities are available, it is strongly recommended that laboratory facilities be used, especially in reference to blood counts, blood studies and cultures of blood and lochia. Where a puerperal patient has an elevation of temperature to 102°F., the lochia should be cultured immediately and be a routine procedure under such circumstances. Blood cultures should be taken if the temperature does not decrease in the twenty-four hours after onset.

The committee expresses its hearty appreciation of the splendid co-operation received from the physicians who answered questionnaires and received so cordially the agent delegated by the committee to secure the data. Also the committee thanks the hospitals that so generously cooperated, especially those that have given evidence of taking former recommendations seriously enough to attempt improvement in facilities and technic concerned with obstetric patients and newborn infants.

To the Division of Maternal and Child Health of the State Board of Health, the committee expresses its thanks for the efforts and detailed work performed in the preparation of this report.

ROBERT O. BLOOD,
BENJAMIN P. BURPEE,
MARION FAIRFIELD.

DR. ROBERTSON: Your committee urges that all physicians doing obstetrics carefully peruse the statistics contained in this report and observe the recommendations.

I move the adoption of this part of our report.

This motion was seconded and was carried.

Report of the Committee on Medical Education and Hospitals

The organization of the Associated State Committees on Postgraduate Medical Education has been perfected during the past year to a point which provides for a definite contact between the interests of the different state societies and the federal government in this field.

A meeting of representatives of each of the states has taken place at each annual meeting of the American Medical Association. Much of the spade work has been done, a fact which should result in some fair degree of co-ordination between the objectives of the different state societies and the equipment and funds necessary for the furtherance of this activity, which the federal agencies seem to be interested in providing.

The New England Postgraduate Assembly will hold its third annual session on November 13-14. Its previous sessions have been regarded as most successful. There is the expectation that more publicity will be given than heretofore among members of the state societies. The attendance, while good, could, and should, be improved.

The Commonwealth Fund Fellowships are continuing to be offered. We still have what seems to your committee a woefully small appreciation of the opportunities, as judged by the number of applications. The information was mailed to the membership of the Society in January, and we have responded to fourteen requests for forms. Presumably these fourteen applications were made to the officials of the Fund. This is the identical number of requests that was made a year ago. There does not seem to be any available means of additional publicity or urging that has not already been used. It is also true that a considerable portion of these requests are repeats. In this connection it is interesting to note that probably the policy of the Commonwealth Fund is not to grant one man more than four appointments.

No attempt at enlargement of the Speakers' Bureau was made for this year, it being the policy to correct and make additions to the list every second year, as there are not enough new men coming into the State to make it practical as an annual revision. The list is in the hands of the secretary of each county society. It has been used to some extent through the committee and probably more often directly through the secretaries and therefore without our knowledge.

JOHN P. BOWLER,
JAMES W. JAMESON,
HARRIS E. POWERS.

DR. ROBERTSON: To make better use of the Commonwealth Fund, we recommend that the Committee on Medical Education and Hospitals, in its annual letter explaining the Fund, state that fellowships are granted to physicians who do not come within the specifications as to age and location.

I recommend the adoption of this part of our report.

This motion was seconded and was carried.

(To be continued)

REPORT ON MEDICAL PROGRESS

KIDNEY DISEASE

REGINALD FITZ, M.D.*

BOSTON

CERTAINLY, in one way or another, Goldblatt has fathered a great deal of significant work on cardiovascular renal disease during the past year, work that is interesting, be it at present chiefly of theoretic interest.

As one by-product, those with chemical leanings have resurrected "renin," originally described by Tigerstedt and Bergmann[1] in 1898. The studies of these investigators lay firmly buried for eleven years until Janeway[2] exhumed them in 1909, through a brief note on the rise in blood pressure which he observed following the reduction of renal arterial circulation in dogs after ligation of the renal arteries. And now once more, indirectly owing to Goldblatt's stimulation, the extraction and purification of renin from the kidney have come to occupy the minds of several investigators.

The technics employed by various workers on the problem have varied, but the general plan has been to extract from renal tissue a blood-pressure-raising principle, to identify it and to study the manner in which it behaves. Prinzmetal, Friedman and Abramson[3] found that saline extracts of ischemic dog kidney and of kidneys of human subjects with hypertension yielded greater pressor effects than did similar extracts of normal kidneys. Helmer and Page[4] have extracted highly purified preparations of renin, as have Swingle, Taylor, Collings and Hays[5] and Merrill, Williams and Harrison.[6] All such work points inevitably to the conclusion that the kidney does, in fact, contain a pressor substance, although how important from a clinical viewpoint this may be is less certain.

Coming closer to the patient and incorporating Goldblatt's ideas is an ingenious bit of experimentation by Page.[7] He produced what he termed proliferative perinephritis in animals as a reaction to enclosing the kidneys in cellophane. Animals so treated developed hypertension, and removal of the kidney, when but one was so treated, cured the hypertension. Thus Page suggests that besides unilateral pyelonephritis with ischemia as a curable cause of hypertension, unilateral perinephritis may be another.

From a strictly clinical angle there are now on record numerous case reports of "Goldblatt men" removal of whose unilateral ischemic kidneys has seemingly cured hypertension. Thus Goldblatt's work is now established on a firm clinical footing.

Today, the hypertensive individual who requires meticulous study deserves careful scrutiny from the combined talents of internists, urologists and radiologists. On the other hand, to prevent undue enthusiasm and unnecessary surgery, the warning of Schroeder and Fish[8] is worth emphasis. In their experience, the removal of a single diseased kidney for hypertension is likely to be of lasting benefit only in patients in whom the existence of hypertension is of short duration, and in whom arteriolar sclerosis of the other kidney is not advanced.

Approaching Goldblatt's work from another angle is a case reported by Derow and Brodny.[9] This patient had a congenital lesion of the posterior urethral valve, producing obstruction and, eventually, the clinical picture of renal rickets. Carey,[10] too, emphasizes the potential importance of urinary infection, as did Weiss and Parker[11] a year ago. Neglected cases of pyuria and urinary infection in children, he says, may result later in severe renal damage and perhaps, too, in hypertension. The preventability of certain cases of chronic nephritis with hypertension by careful urological investigation and early treatment of urinary infection or obstruction is a recent concept most important to bear in mind.

Unusual forms of kidney disease not ordinarily encountered are always worthy of mention. Several months ago two papers appeared at about the same time re-describing what Kimmelstiel and Wilson[12] in 1936 termed intercapillary glomerulosclerosis. Newburger and Peters[13] from New Haven reported 4 autopsied cases with this lesion and 5 additional cases which were characteristic clinically. Derow, Altschule and Schlesinger[14] from Boston reported another autopsied case. As one reads these two papers and compares the photographs which reproduce the glomerular lesions characteristic of this condition, it is clear that both teams of observers were describing the same type of case. The clinical earmarks of the patient with this peculiar glomerular lesion are readily distin-

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guishable. The constant features of the disease are a combination of diabetes, albuminuria, hypertension and retinal vascular changes. The nephrotic syndrome is common, and depends for its development on the extent and duration of the albuminuria and the protein intake. The pathogenesis of the condition appears to be a severe and extensive arterial and arteriolar degeneration associated with and perhaps resulting in diabetes mellitus, hypertension and renal damage. Differential diagnosis requires among other lesions the exclusion of amyloid disease coincident to diabetes and hypertension — a rare combination which might conceivably reproduce this syndrome.

Anyone with experience in diabetes is likely to recall cases of intercapillary glomerulosclerosis, since its clinical features are so striking. Unless one has the disease in mind, however, it will pass unnoticed. Further knowledge concerning so notable a diabetic renal lesion is desirable.

Another familiar form of renal disease which needs continual emphasis has been well discussed recently by Thompson, Frazier, and Ravdin.[15] These authors have studied the renal lesion in obstructive jaundice. At times, as is well known, this terminates with what surgeons are apt to call the "hepatorenal syndrome." Basically, the renal disturbance in obstructive jaundice, according to the experience of these investigators, appears to be a tubular lesion where the tubules are dilated and show compression of the lining epithelium with areas of vacuolization, fragmentation or desquamation. Thompson, Frazier, and Ravdin point out that if no previous renal injury exists, the evidences of cholemic nephrosis are likely to disappear quickly following the release of the obstruction. On the other hand, in fatal cases, glomerular changes are likely to be found, being due, they presume, to a pre-existing renal disease. Since the hepatorenal syndrome is such an uncomfortable condition to contend with in one's patient who has obstructive jaundice and who comes to operation, it is worth remembering beforehand that in liver disease with jaundice the condition of the kidneys is important, and that patients with a known renal lesion may do badly following operative procedures for the relief of obstructive jaundice.

Prather[16] has published a timely paper. As he says, with the present adult public addicted to fast driving and the modern juvenile population actively engaged in individual and scholastic athletics during all months of the year, it is not surprising that patients with injuries to the kidneys are often encountered.

All doctors, nowadays, should know something of traumatic conditions involving the kidneys. Prather reviews 20 cases. The types of renal injury which he met most often were contusions of the kidney, subcapsular rupture, laceration of the kidney and its capsule, and severance of the renal pedicle. Of course, in any given case, the trick is to make an accurate diagnosis and determine the best form of treatment.

Prather advocates, as an aid to diagnosis, pyelographic studies by the intravenous method shortly after the patient is seen and, naturally, careful examination of the urine; above all, careful examination of the patient, his blood pressure level, his pulse rate and his body temperature. Pyelographic studies, as judged by the illustrations in Prather's article, are likely to yield a great deal of valuable information. It is surprising, too, how many of his patients with serious renal trauma recovered without operation. In this particular field of kidney disease it is obvious that well-organized team play between the internist, the urologist and the radiologist is indicated. An error in therapeutic judgment is likely to prove costly to the patient.

Madding, Binger and Hunt[17] report a case with another unusual form of kidney disease: acute urinary suppression which developed postpartum. The patient was a primipara. Immediately after delivery she became almost completely anuric for eight days. No urologic lesion was discoverable to explain the anuria; hence pregnancy was assumed to be the cause.

If this woman had symmetrical cortical necrosis of the kidneys, as is suggested, the fact that she recovered is an unusual state of affairs, for of course the prognosis in cortical renal necrosis is almost hopelessly grave. She was treated by the liberal use of fluid, with 10 cc. of aminophylline given morning and afternoon, and by good nursing. In addition, she was given a diet low in protein, salt and condiments. Madding, Binger and Hunt believed that to use the more powerful mercurial diuretics was contraindicated on the ground that they might well have hindered the improvement that was taking place. Renal decapsulation was contemplated, but the procedure was dismissed as being too hazardous and as offering too slight an advantage to be attempted.

The treatment which was carried out so successfully in this case under circumstances where there must have been a very acute underlying renal lesion is interesting in the light of some experiments by Addis and Lew[18] and by Bergman and Drury.[19] The former, employing their "reversible acute uremia" in rats, found that none of the animals died when they were given diets low in protein, whereas the mortality was appreciably

higher when high-protein diets were employed. This fact they attributed in part to the potassium in the meat. Bergman and Drury, employing as an indicator the survival time in nephrectomized rats after different types of diet, also found that meat fed immediately before operation was definitely toxic, and they too concluded that potassium was harmful and responsible for part of the toxicity of meat. In the treatment of acute nephritis with anuria, therefore, the potassium content of the diet seems to deserve consideration.

Merrill[20] reports 3 cases of leukemia which tend to show the unpleasant effects on the kidney that may follow x-ray therapy. He says that uremia is not a rare complication of the x-ray treatment of this disease — a fact worth remembering. He believes that, since radiation in leukemia may bring about an enormous increase of uric-acid production within the body, and since such rapidly mobilized uric acid must be excreted by the kidney, such an increased burden may precipitate clinical uremia if the kidneys are sufficiently damaged either by leukemic infiltration or by nonleukemic lesions. He believes also that through radiation there is a danger of the formation of uric acid stones anywhere along the genitourinary tract. With these facts in mind he suggests that before treatment is instituted in leukemia preliminary studies of the blood levels of nonprotein nitrogen and uric acid are indicated; that during x-ray treatment a low-purin diet with large quantities of fluid should be employed; and that administration of alkalis by mouth, in an attempt to keep the urinary reaction alkaline and hence lessen the danger of uric-acid stone formation, should be instituted. This reasoning appears sensible.

Several papers have appeared during the year which emphasize the importance of the renal lesions that may develop from the use of sulfanilamide or its derivatives. Tsao, McCracken, Chen, Kuo and Dale,[21] Carroll, Shea and Pike,[22] Stryker,[23] and Scurry and Wittenborg[24] all report cases which, following the administration of sulfapyridine, developed hematuria. Several of their cases became anuric. In the fatalities that are reported, the necropsy findings were much the same. The striking findings were an acute nephritis and the precipitation of small calculi in sufficient quantity to cause obstruction to renal outflow. These cases bring forward additional evidence to suggest that when a patient is receiving sulfapyridine an abundant fluid intake is indicated; that hematuria should always be carefully looked for; and that when hematuria occurs it is a sign ominous enough to warrant the discontinuance of the drug. If anuria develops, ureteral catheterization and irrigation of the renal pelves may be a useful procedure.

What may be termed clinical stupidity in the management of renal disease has received several warnings. Quinby and Austen[25] report 4 cases which temporarily became anuric following too rapid a combination of intravenous and retrograde pyelography. That anuria lasting as long as seventy-six hours, as it did in one case, can occur after pyelography is worth emphasizing in these days, when the pyelographic method is being frequently used. Apparently what happened was that insufficient time between the two tests was allowed to elapse and that pyelographic mediums were used in an amount too large to be passed successfully through a normal single kidney. Quinby and Austen issue a wise dictum. In cases in which there is reduction of normal renal function it is well to repeat pyelographic studies, especially by both the excretory and retrograde methods, only after at least a forty-eight-hour interval. In other words, overenthusiasm in one's zeal quickly to obtain accurate urological diagnosis may lead to trouble.

Anderson and Bethea[26] remind us that hypertonic solutions of sucrose injected by vein may by no means be innocuous. In 6 cases receiving such injections they found destructive renal lesions similar to those observed in experimental animals. Thus, they warn that the administration of hypertonic solutions of sucrose to patients with renal damage, whether to reduce intracranial pressure or as a diuretic, is inadvisable. Certainly large or repeated doses of this substance should be avoided.

Even the giving of too much salt solution in an effort to get rid of the dehydration that sometimes is seen in chronic nephritis may be harmful rather than beneficial. Evans and Shulman[27] show that if a patient is malnourished and with hypoproteinemia, this latter fact constitutes a contraindication to the administration of large amounts of salt and water parenterally. The taking of too much salt and water precipitates edema already potential by reason of a lowered osmotic tension, and hydremic plethora so induced further conditions the organism for the precipitation of an acute pulmonary edema. In the management of nephritis and fluid intake, therefore, the concentration of plasma protein is significant. Rare judgment may be necessary when it comes to deciding in a given case whether more or less fluid intake is indicated. The giving of too much fluid is fully as bad as that of too little; all of which goes to prove that good clinical judgment in the management of renal disease continues to be as necessary as ever.

Concerning the more general problems of nephritis and hypertension, Schroeder and Steele[28] have attempted to classify so-called "essential" hypertension. They have divided their cases into five groups. They believe that the origin of hypertension may be renal, nervous, endocrine, vascular or unclassified. Their paper is of especial interest in connection with one by Rennie,[29] who discusses the role of personality in certain hypertensive states. Admitting, with Schroeder and Fish, that many patients with hypertension have a nervous element behind their difficulties, Rennie's ideas are sound. For he says that failure to recognize the personality component in hypertension may lead to serious complications and invalidism or elevated blood pressure, whereas willingness to deal with the personality features may offer the only or the most effective therapeutic tool. It is satisfying now to have clothed in elegant psychiatrical language what older clinicians have known and taught for many years.

The advances during the year in the medicinal treatment of hypertension and chronic nephritis have not been striking. Mosenthal[30] has written an excellent article full of common sense, in which he says that since there are no means by which an elevated blood pressure can be appreciably and consistently lowered, the medicinal treatment of hypertension has resolved itself into the establishment of the most perfect possible physical and mental control of the patient. Of the drugs which may be of help, the barbiturates are as useful as any. The so-called vasodilators and tissue extracts which from time to time have been endorsed are not particularly satisfactory.

The usefulness of sulfocyanate is still under fire. Robinson and O'Hare[31] conclude that the drug in uncomplicated vascular hypertension in patients under sixty years of age, when carefully controlled, has decided value. On the other hand, Garvin[32] reports 8 fatalities following its use. Hamilton,[33] employing the experimental approach, has ingeniously made a study on the blood-pressure level of street dogs. Sulfocyanate did not produce a significant or permanent lowering of blood pressure in such animals as were found to have hypertension. On the whole, the popularity of sulfocyanate for the treatment of hypertension appears to be on the ebb.

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTEMORTEM AND POSTMORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

CASE 26301

PRESENTATION OF CASE

A forty-four-year-old bricklayer was admitted to the hospital complaining of a chronic cough.

The patient was a Turkish-born Armenian who spoke English so poorly that the history obtained from him was sparse and perhaps incomplete. He apparently enjoyed good health until two years before admission, when he caught a severe "cold" which left him with a residual dry, hacking, painless cough which was non-productive except for an occasional raising of small amounts of white phlegm. There was no admixture of blood at any time. Slowly over a period of months the cough improved and he gradually resumed work. It was stated that the cough appeared to be worse in winter and better in summer. Despite a good appetite he lost considerable weight. Ten weeks before admission he felt worse, becoming weak and tired. He stopped work and stayed at home, where he rested, with some improvement. His weight had dropped from an original of 140 pounds to 100 pounds. He noted increasing malaise and easy fatigability, and for a period of two weeks, approximately two months before admission, he experienced severe repeated night sweats but noted no other symptoms. Five weeks before admission he entered an outside hospital where x-ray studies of his chest were made. He was not informed as to their diagnostic import and was referred to this hospital for further diagnosis and treatment. On admission here he stated that his cough still persisted. He knew of no tuberculous contacts, and no one else in his family had experienced any similar ailments. There were no other complaints. The remaining family, marital and past histories were non-contributory.

Physical examination revealed a small man with a dry hacking cough. The skin was loose and inelastic, and gave evidence of recent weight loss. Expansion of the lungs was limited bilaterally because of severe paroxysms of coughing incident to deep breathing. There was very slight dullness over the right base posteriorly, and a few loud rhonchi to auscultation. Tactile fremitus and voice sounds were normal over the area. The remainder of the chest examination was negative, as was the examination of the heart. The blood pressure was 120 systolic, 80 diastolic. The remainder of the physical examination was negative.

The temperature, pulse and respirations were normal.

Examination of the blood showed a red-cell count of 5,700,000 with 95 per cent hemoglobin (Tallqvist), a white-cell count of 17,000 with 80 per cent polymorphonuclears, and a normal smear. Examination of the urine was negative. The sputum examination was negative for acid-fast bacilli. Roentgenograms of the chest showed a sharply defined, rounded shadow in the right base filling the costophrenic angle. The septum between the upper and middle lobes was displaced slightly downward. The lower septum was not seen. In the lateral view the density was seen to lie posteriorly in the lower lobes. It was somewhat triangular in shape with its apex toward the hilus. The right upper lobe and the entire left lung were clear. The heart shadow was thought to have been slightly displaced to the right, but the diaphragm was normal in position. There was Lipiodol in many of the alveoli of the right lower lobe. After bronchoscopic examination and Lipiodol injections, which showed no definite findings, save obstruction to the right lower-lobe bronchus, it was observed roentgenologically that the upper posterior half of the right lower lobe did not contain Lipiodol and that the main bronchus to this portion of the lung had not filled. There was a suggestion of a pressure defect on the posterior surface of the main bronchus to the right lower lobe. This bronchus appeared narrowed, but there was a good filling of the bronchi to which it connected. There was still some air in the bronchi of the collapsed portion of the lower lobe, and a few flecks of Lipiodol, probably resulting from the previous injection in the outside hospital, were also noted. The middle lobe was unusually large, and there appeared to be two separate branches originating from the main right bronchus about 2 cm. apart, with evidence that the pressure on the right lower-lobe bronchus was most marked at the point of origin of the second branch.

He was discharged home for a six weeks' interval and returned to the hospital for operation.

DIFFERENTIAL DIAGNOSIS

DR. DONALD S. KING: We are told that the history is incomplete. There was a dry cough off and on for two years, with fatigue, a 40-pound weight loss, no pain, no hemoptysis, no purulent sputum, and night sweats for two weeks only.

There were a few loud rhonchi, but we are not told whether they persisted. Of course the presence of persistent unilateral rhonchi would mean partial bronchial obstruction, which is an important finding.

I do not agree entirely with the interpretation of the x-ray films as given in the abstract, and I believe that there is at least one film missing. I should like to put up the x-ray films and discuss them with the roentgenologists. In the first place, we have a peculiar shadow in the cardiophrenic angle, not the costophrenic angle as reported. I believe that this shadow looks more like collapsed lobe than tumor, but it has a rounded border and is not the triangular shadow of a typical collapsed lower lobe. We discussed this case at the Thoracic Clinic, and Dr. Churchill suggested that an injected lobe trying to expand as a result of partial bronchial obstruction would be of this shape.

Dr. Aubrey O. Hampton: I remember that Dr. Churchill propounded that theory. I did not believe it was necessary to suppose that the lower lobe was trying to expand. Why not a collapsed and water-logged lobe?

Dr. King: Would a water-logged lobe give that shadow?

Dr. Hampton: I do not see why it should not.

Dr. King: Is the entire lower lobe collapsed or only part of it? I am particularly interested in a study of the interlobar septums. The septum between the upper and middle lobes is obvious, and in the lateral film taken at the time of the first admission there is a septum shown between an upper and a lower lobe posteriorly. I am anxious to have Dr. Hampton's opinion as to whether this is the septum on the right side or the left, because if it is the one between the right upper and lower lobes, there is a portion of the right lower lobe which is not collapsed.

Dr. Hampton: I believe that this is the septum on the left side and that the entire right lower lobe is collapsed. Otherwise we should not have the rounded shadow.

Dr. King: The lateral film taken at the second admission would bear out Dr. Hampton's contention because in this film the supposed septum between the left upper and lower lobes is not present, and the septum between the upper and middle lobes on the right side is displaced downward in a sharply rounded curve.

The next questions are whether there is some air in the collapsed lower lobe and whether bronchiectasis is actually present. I believe from the x-ray interpretation that air is present. I should guess from the plain films that there was evidence of bronchial dilatation. Do you agree with this, Dr. Sosman?

Dr. Merrill C. Sosman: I do not believe you can say because they are not filled with Lipiodol.

Dr. King: You would not want to make a diagnosis without Lipiodol injection?

Dr. Sosman: No.

Dr. King: Dr. Hampton has often made the diagnosis before Lipiodol filling. What about this case, Dr. Hampton?

Dr. Hampton: I agree with Dr. Sosman; you cannot make a diagnosis of bronchiectasis unless you can see the dilatation better than you can here.

Dr. King: You would not say that there is bronchiectasis from this film?

Dr. Hampton: No.

Dr. King: As I said before, I believe that one of the oblique films taken after Lipiodol was injected is missing. In the films that we have I can see no evidence of two separate bronchi to the right middle lobe, and we are greatly confused by the fact that no oblique film was taken with only a right-sided injection. It is impossible in these lateral films, it seems to me, to separate the bronchi of the left lower lobe from those of the right lower lobe. The report states that the bronchus to the right lower lobe appeared narrowed but that there was a good filling of the bronchi with which it connected. As I look at these films I can find no evidence of filling of any of the branches to the right lower lobe.

Dr. Hampton: I admit that confusion arises over the injection of the left side. All the bronchi are projected on this area which makes it more difficult. I interpreted this film. I remember that I studied it for quite a long time, and I think I must have had more films. Dr. Adams helped me interpret it on the basis of the anatomic variation of the middle lobe that he saw at bronchoscopy.

Dr. King: I take it then that the roentgenologists are willing to agree that there is collapse of the entire right lower lobe, and no Lipiodol filling of the bronchial branches to this lobe.

The final question concerns the evidence for a mass pressing on the right lower-lobe bronchus. Personally I cannot make out such a mass and am not sure that there is a narrowed bronchus on the right side. I see the area in question, but it does not seem to me to have the density that one would expect from a tumor mass.

Dr. Sosman: I believe there is a mass in this region, either collapsed lobe or tumor. The shadow is denser than normal.

DR. KING: Would you say that it was a mass and not an atelectatic lung?

DR. SOSMAN: Atelectatic lung is a mass. "Shadow" would be a better term perhaps.

DR. KING: I am still not convinced that there is x-ray evidence of a mass pressing on and narrowing the bronchus to the right lower lobe.

The next focus of study is the bronchoscopic examination. The report in the abstract seems to me ambiguous. We are told that there were "no definite findings save obstruction to the right lower-lobe bronchus." It is very important to know more about this obstruction. Did the bronchus appear to be obstructed by a tumor mass or was the appearance that of an inflammatory process? Was the obstruction partial or complete, and was there bronchial secretion? Could a biopsy specimen be taken?

DR. BENJAMIN CASTLEMAN: I shall read the bronchoscopy report:

> The larynx, vocal cords and trachea were normal. The carina was blunt, and the left main bronchus came off at a right angle. The mucosa at the carina was normal. The right upper-lobe orifice was normal. Immediately below the right upper-lobe orifice the bronchus became narrowed to half its size. The middle-lobe orifice was pushed backward and was a direct continuation of the right main bronchus, so that at first it was thought to be the latter. Further examination, however, eventually demonstrated, far posterior to its usual location, an almost completely stenotic lower-lobe bronchus so narrow that only an aspirator could be introduced into it. No outcropping was seen. A moderate amount of secretion was obtained with the aspirator, but its odor was not foul.

Evidently it was not possible to obtain a biopsy.

DR. KING: My final conclusion is that we have complete obstruction of the right lower-lobe bronchus and collapse of the entire right lower lobe, with some air remaining. We are then faced with the problem of what is obstructing this bronchus. The possible causes of bronchial obstruction are, of course, inflammation from tuberculous or non-tuberculous infection and tumor, either benign or malignant. The history of fatigue and weight loss makes one think of a malignant process, but there is nothing in the bronchoscopic examination or the x-ray studies which seems to me to prove this diagnosis. Neither is there evidence of tuberculosis. I believe, therefore, that we are dealing with an inflammatory stenosis of the right lower-lobe bronchus and that bronchiectasis is present in the atelectatic lobe.

DR. CASTLEMAN: Dr. Sosman, would you venture a diagnosis?

DR. SOSMAN: Partial stenosis of the lower-lobe bronchus, cause undetermined.

DR. RICHARD H. SWEET: We were unable to go any farther with the preoperative diagnosis than Dr. King has here. The discussion about the shadow in the right side of the chest, which has been interpreted here today as being that of an interlobar septum, interests me because at the operation it was obvious that there was no such septum. On opening the chest we found that the upper lobe had expanded and completely surrounded, except on the mediastinal surface, the collapsed and rounded lower lobe so that the lung markings which one sees even in the lower portion of the chest lateral to the lower lobe shadow are those of the upper lobe.

The exact nature of the lesion was difficult to determine even when we were able to palpate it directly through the open wound. It was not possible to tell whether we were dealing with an inflammatory process or with a neoplastic one, or possibly a combination of both. The middle lobe, as well as the lower lobe, was atelectatic. We cut down on the tissues around the hilus and found after painstaking dissection that it was impossible to separate the upper-lobe structures because of involvement at that point with the disease process, whatever it might be. It was therefore obvious that we could do only a total pneumonectomy. This course was decided on, but in cutting across the hilar structures it was immediately obvious that we were dividing tissues which were involved in a pathologic process, although it was impossible to determine even then whether it was chronic inflammatory thickening or infiltration with carcinoma.

We knew when we reached that stage that we were cutting through pathologic tissue. Dr. Brailey asks, what was the sense of continuing the operation, but having gone that far you cannot retrace your steps. He had an uneventful recovery and went home feeling well.

The most interesting thing about this case was the peculiar shadow, which was correctly interpreted by Dr. Churchill and shown by the exploration to be caused by the collapsed and infiltrated lower lobe with the upper lobe completely surrounding it.

DR. KING: The middle lobe was collapsed at operation?

DR. SWEET: Yes, when we finally got to it seven weeks later.

CLINICAL DIAGNOSES

Bronchostenosis.
Carcinoma of bronchus?

DR. KING'S DIAGNOSES

Inflammatory stricture of the bronchus.
Bronchiectasis.

Anatomical Diagnosis

Epidermoid carcinoma of the bronchus of the right lower lobe.

Pathological Discussion

Dr. Castleman: I examined the specimen in the operating room and before cutting into the obstructing lesion was also in doubt as to its exact nature. A cross section through the main lower-lobe bronchus showed that it was completely obstructed by a yellowish-white granular tumor mass which involved the complete circumference of the bronchus and which extended outside the bronchial wall to form a tumor approximately 4 by 3 by 2 cm. The tumor extended along the bronchus for a distance of 4 cm., and definite tumor was present at the resected edge. Dr. Sweet was forced to cut through tumor in removing this lower-lobe bronchus because it extended almost to the main stem. There were metastases to the regional nodes around the main bronchus. Histologically it proved to be an epidermoid carcinoma, Grade III. There were atelectasis and fibrosis of the parenchyma of the lower lobe, but no bronchiectasis. The middle lobe was partially collapsed and the upper lobe was well aerated.

CASE 26302

Presentation of Case

A twenty-four-year-old carpenter was admitted to the hospital complaining of intermittent pain in the back.

The patient stated that he had experienced generalized backache occurring in three separate episodes, each lasting several successive nights, during a two-year interval prior to admission. The pain was always noticed as he retired to bed. He thought that it was a consequence of the strenuous physical work of his trade. Seven weeks before admission he "bumped" his back against a nail without breaking the skin, and noted a slight, local, transient pain at the point of contact. Two weeks later, however, on retiring to bed, he had a recurrence of the back pain experienced before the local injury. Its exact localization was not stated. It recurred on successive nights, and on the third evening was severe enough to awaken him from sleep. He arose from bed, and in so doing, accidentally struck the back of the left mid-chest region, where the pain was located. As he did this, he fainted, and the following morning he noticed local heat with swelling over the area. He rested at home for one week, then returned to work for about ten days, during which time he experienced only slight discomfort over the "slight lump" which had persisted. The area caused no real pain unless he moved suddenly in bed or struck it while working. Nine days before admission, trauma to the swollen area caused him to "nearly faint"; he became nauseated and weak for several seconds. Since then he had experienced generalized weakness and attacks of vertigo, and had fainted on at least two occasions. An x-ray examination of the painful area, made in an outside hospital, was said to have shown "inflammation of the bone." The pain steadily increased, and the swelling became larger. He was treated with chest strapping and rest, but because he failed to improve was referred to this hospital for further diagnosis and treatment.

The family, marital and past histories were non-contributory.

Physical examination revealed a fairly well-developed and well-nourished man whose face and upper back were covered with comedones and an acneform eruption. There were small pimples in the skin of the chest that had previously been the site of adhesive strapping. A warm, tender, fusiform swelling of the body of the left tenth rib was observed, without redness of the overlying skin. The remainder of the physical examination was negative.

The temperature, pulse and respirations were normal.

Examination of the blood showed a red-cell count of 5,200,000 with 15 gm. of hemoglobin (photoelectric-cell technic), and a white-cell count of 10,200 with 65 per cent polymorphonuclears, 21 per cent lymphocytes, 8 per cent monocytes and 6 per cent eosinophils; the smear was essentially normal. The urine was negative save for the sediment which showed rare red and white blood cells. Testing the urine by heat, nitric acid and alcohol for Bence–Jones protein was negative. The serum calcium was 10.7 mg. per 100 cc., and the serum phosphorus 4.0 mg. The serum protein and nonprotein nitrogen were 6.8 gm. and 23 mg. per 100 cc. respectively. A blood Hinton test was negative.

Roentgenograms of the chest showed that the lung fields were clear. There was no evidence of mediastinal masses. The left tenth rib showed moth-eaten bone destruction of the inferior margin, over an area 4 cm. in length. There was very little thickening of the soft tissues, with no evidence of involvement of the pleura or of periosteal proliferation. The rib was not enlarged.

X-ray films of the kidneys were essentially negative by flat plate and intravenous pyelography.

In the flat abdominal film there was an increase in density and slight bulging of the right psoas muscle opposite the right kidney pelvis. Films of the spine, pelvis, femurs and skull were normal.

On the fourth hospital day an operation was performed.

Differential Diagnosis

Dr. Clifford C. Franseen: May we see the x-ray films?

Dr. Aubrey O. Hampton: There were examinations of the skull, pelvis, spine, ribs, urinary tract and lungs, and the only positive findings are those mentioned in the record, except that in addition to the suggestion of a soft-tissue mass in the region of the psoas muscle there is also a suggestion of pressure on the kidney pelvis in the same area. In other words, there is some evidence that there might be a mass there. The psoas muscle, however, is still distinct.

Dr. Fuller Albright: Will you point out the rib defect?

Dr. Hampton: It is here in this area. There is no new-bone formation; it is a purely destructive lesion without obvious soft-tissue mass or evidence of pleural disease.

Dr. Franseen: The first thing of importance is that this was a two-year history, so that we have to think of something that might have lasted over this period of time. There might be a coincidental condition to cause the backache. He bumped his back without breaking the skin and noticed slight pain as anyone might. He bumped it a number of times later, and it seems obvious that the area was hypersensitive, and that is why he seems to have bumped it so often. But he must also have had some systemic disturbance, because he fainted so many times, and he did not recover even with rest. He often had nausea because the pain was so severe. The generalized weakness and the attacks of vertigo certainly suggest some condition which was weakening him and undermining his general physical condition; he was apparently a strong twenty-four-year-old carpenter before his illness began.

A previous x-ray examination — we are not told how long before admission it was taken — showed inflammation of the bone, presumably some destructive process.

On physical examination he had the swelling over a rib. In view of the possibility of hypernephroma, it would be interesting to know whether this mass pulsated, but nothing is said about that.

We are helped but little by the laboratory work. The slight leukocytosis might be accounted for on the basis of tumor or inflammation; in regard to the former, metastatic bone lesions, particularly those of hypernephroma, and a Ewing's tumor are both apt to give a leukocytosis. I cannot explain the 6 per cent eosinophilia on the basis of the bone lesion. The urine showed rare red and white blood cells, a finding which may or may not have significance. If a mass outside the renal pelvis or a neoplasm within was producing the red cells, they would be of importance in our diagnosis. No Bence-Jones protein was found; they were obviously looking for evidence of myeloma, although this protein has been reported in other conditions. The serum calcium and phosphorus at the levels given do not help either way. The serum protein was determined because its level is valuable in the differential diagnosis of multiple myeloma. Nothing is said about the phosphatase, but I doubt if it would have helped in this case. Metastatic lesions in our experience have always given a normal phosphatase if there is only a single lesion. There is nothing in the laboratory data which gives any lead to a metabolic disturbance of the bone, which this lesion might conceivably represent. The x-ray film is purely that of a destructive lesion; there was no periosteal proliferation. That is of diagnostic importance. The other important thing is the mass medial to the kidney. This might be a projection of a tumor from the kidney, an extraneous tumor lying medial to it or a tumor arising in a rest contiguous with the kidney. These are the things we must take into consideration in explaining both lesions with one diagnosis.

We have no lead whatever to a metabolic disturbance of bone in this case. The Hinton test was negative. It is difficult to believe that this was a chronic osteomyelitis going on for several years without any new-bone formation. It would be difficult to make a diagnosis of tuberculosis, on the basis of the evidence given here, as this mass in the region of psoas, if it had gone on for two years, should show some calcification, and certainly there is none in the x-ray film. In any event there should have been a new-bone formation.

We come to consider a neoplastic process, either primary or secondary. For primary neoplasm we have nothing to lead us to believe that this is a myeloma. The fact that it was a single lesion is against the diagnosis. Myeloma may occasionally not be demonstrable by x-ray and can give chronic pain in the back for a long time. Two years is a long time, of course, for any neoplastic process, but it can occur. Osteogenic sarcoma

would be extremely rare in a rib at this site. Lymphoma could give a destructive process like this. The rib lesion might be a metastatic lesion from the retroperitoneal mass, but we have no further evidence for considering that. When we come to secondary lesions, the appearance is not characteristic of a Ewing's tumor, but the diagnosis might remotely be considered. It would, of course, be characteristic of carcinoma; however, we must look somewhere for a primary tumor. If we do that in a man of twenty-four we have to consider everything in the gastrointestinal tract from the esophagus to the rectum. Certainly in the genitourinary tract a tumor arising anywhere from the kidney to the bladder and prostate may metastasize to bone. Even the pancreas has to be considered, but we have no lead. The only suggestion we have, of course, is the mass in the kidney region.

The insidious character of the metastases of those tumors from the kidneys which we commonly call hypernephromas is well known; even after removal of the primary tumor, it may be ten years before metastasis to bone appears. It may give a purely destructive single lesion, such as this is. It may pulsate, as Dr. Simmons and others have pointed out, because of extreme vascularity. The rare red blood cell in the urine might be related to the presence of such a tumor, and if I take the evidence at hand and make a diagnosis from that, I shall have to say that the working diagnosis for biopsy in this case is metastatic hypernephroma.

Dr. Hampton: I might add that a tumor of the kidney that produces a pressure defect on the medial aspect of the kidney pelvis is rare. A papillary tumor of the pelvis is a possibility, but there is nothing in the pelvis to suggest it.

Dr. Franseen: That is why I have to explain it on the basis of tumor that distorts the capsule and extends along the medial side. It could be explained by a contiguous tumor. A tumor of adrenal origin is rare in the kidney. Clinically we usually call tumors of renal origin, hypernephromas; hence, this could conceivably be either a tumor of adrenal origin or a carcinoma of the kidney, which could conceivably arise from a rest at this site in the kidney. My next choice is a lymphoma, which could give a lesion in both these locations.

Clinical Diagnosis

Changes consistent with either lymphoma or Ewing's tumor.

Dr. Franseen's Diagnosis

Metastatic tumor of adrenal or renal origin? Lymphoma?

Anatomical Diagnosis

Eosinophilic granuloma of bone.

Pathological Discussion

Dr. Tracy B. Mallory: The surgeon who was in charge of this case did not commit himself to a diagnosis beyond saying that it was a bone tumor. I think he gambled on its being primary and discarded the long history of back symptoms, because instead of doing a biopsy he did a resection of the rib. The specimen which we received was unlike anything we had ever observed before. On microscopic examination it was evidently a granulomatous process with a good deal of fibrous tissue and with a great many foci of giant cells, which tended to be clumped in tuberculoid foci, and an enormous number of eosinophils. The clumping of the giant cells and epithelioid-like monocytes make one think of tuberculosis, but there was no caseation. It also made one think of syphilis, but eosinophils would be extraordinary in syphilis. It looked a good deal more like a sarcoid, although the tubercles were not well enough formed even for that diagnosis.

I should have been unable to make a diagnosis if I had not had the opportunity of seeing two manuscripts, one by Lichtenstein and Jaffe and one by Otani and Ehrlich, as yet unpublished but shortly to appear in the *American Journal of Pathology,* in which the authors independently describe several cases of this condition and agree to call it eosinophilic granuloma of bone. It is a histologically specific lesion which occurs generally in flat bones, very frequently follows a history of trauma and apparently runs a perfectly benign course following resection or mild radiation. The histologic picture is so characteristic that I do not believe it could be mistaken for anything else. I am sure that is what we are dealing with here, and I suspect he is well so far as this condition is concerned but may continue to have "back trouble" for the rest of his life.

Dr. William B. Breed: Is Dr. Hampton still interested in the kidney?

Dr. Hampton: I wonder if I made up my mind that the tumor in the rib was lymphoma and then used my imagination. I am convinced that a tumor in the rib such as this and associated with a retroperitoneal mass is usually lymphoma.

DR. F. DENNETTE ADAMS: What about the nausea and fainting?

DR. MALLORY: Nausea, vomiting, prostration and fainting are the ordinary symptoms of so-called "sacro-iliac disease"; all of this would go with back strain.

A PHYSICIAN: Have you any other cases in your files under this category?

DR. MALLORY: I may have one, that of a child who was supposed to have had Schüller-Christian's disease and on whom a biopsy showed many giant cells and numerous eosinophils. Unfortunately the biopsy was from a lymph node, not from one of the bone lesions, so I am not certain about it. Schairer* has, however, reported a case of a peculiar granulomatous lesion in a child's skull, with a marked reaction of eosinophils as well as of giant cells, which seems to have been essentially similar.

DR. GRANTLEY W. TAYLOR: Have the other patients had eosinophilia?

DR. MALLORY: I cannot remember. Apparently that was the only lead in this case.

DR. HAMPTON: Do you have eosinophilia with coccidioidal granuloma?

DR. MALLORY: I think not.

*Schairer, E.: Ueber eine eigenartige Erkrankung des kindlichen Schädels (Osteomyelitis mit eosinophiler Reaktion). *Zentralbl. f. allg. Path. u. path. Anat.* **71**:113-117, 1938.

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THE PRICE OF SECURITY

Occurrences that have apparently never happened before, in the world's memory, are now part of the daily news; we are living hour by hour on our regular shot of excitement, and miss it if it fails us, as the addict misses his morphine or his cocaine. Europe's catastrophe and the rise of a central hegemony keep the pulse quickened as the news symphonists play upon the changing strings of current events; the Far East and the Near East and our Latin neighbors to the south furnish a fairly steady source of stimulation to the emotions, and a presidential campaign of a new pattern and intensity titillates the American temperament between its bouts of more distant agonizings.

It is a fair commentary on what we can take; on how readily we can accustom ourselves to changes of ideas, at least if given only a reasonable time to do so. The months before Munich gave us as uneasy a feeling as we have experienced since our faith in the progress of the stock market onward and upward forever was shattered a decade ago. The spring military successes in Europe, and particularly the unorthodox, out-of-uniform infiltrations, filled the hearts of those Americans who live within a generous distance of an arsenal or a navy yard with an emotion closely akin to panic.

The long and the short of it is that we do not like modern totalitarian methods of doing things. Neutrality or no neutrality, we distrust and dislike bitterly those nations that employ such methods of achieving their ends. We may not be engaged in military conflict, but so long as we have reason to fear such nations, they are the enemy.

The erasure of neutral countries and the collapse of France have cleared the air. There is no longer any question as to whether the United States will become involved. Economically we are involved, and the only way that we may possibly avoid being much more seriously, and perhaps disastrously, involved is by preparing swiftly, but intelligently, to defend ourselves against every type of attack. For this we must have courageous, far-sighted leadership; we must have an understanding of the problems to be met and the sacrifices to be made; we must have a logical program that we can understand and approve.

The medical profession, as usual, will carry its share of the burden. Comparatively few of us will be called on to serve in the armed forces of the country. For all, however, there will be extra work to do, mostly of an unpretentious nature. We can all signify to our own leaders, by executing promptly the questionnaire that has been sent to us, our willingness to do the job for which we are best suited. We can all work toward improving the morale and the confidence of the nation, and for this task our opportunities are unexcelled.

FLUOROSCOPY AND EARLY TUBERCULOSIS

WHAT are physicians doing to raise their "batting average" in the very early diagnosis of tuberculosis? In 1935 the Council on Medical Education and Hospitals of the American Medical Association[1] showed that only 13 per cent of those admitted to sanatoriums in the country as a whole were in the minimal stage of tuberculosis; 30 per cent were in the moderately advanced stage, and 57 per cent in the far advanced stage. From the Metropolitan Life Insurance Company Sanatorium at Mount McGregor, New York, however, comes news[2] that 59 per cent of those admitted from 1930 to 1938 were in the minimal stage; 36 per cent of the cases were moderately advanced, and only 5 per cent far advanced. These figures are a reversal of those reported for the country at large.

These good results in early diagnosis apparently evolve from a systematic case-finding program among all employees of the Metropolitan Life Insurance Company. The first essentials of this program are the complete medical examination of all applicants and re-examination each year or oftener of those in the service of the company. But most important is the fact that fluoroscopic examination of the chest by trained experts has been made a part of each annual examination and is carried out following respiratory diseases and frequent colds. This case-finding technic deserves close scrutiny if it can improve the diagnosis of minimal tuberculosis so effectively. The second part of the program concerns adequate care of the early tuberculous lesion. Eighty per cent of the patients who exemplified both early detection and adequate treatment were at work or able to work five years after discharge. These results at Mount McGregor are impressive and demonstrate not only the necessity of early diagnosis but the need for early and adequate sanatorium care.

Fluoroscopic study, with x-ray confirmation, is important for the early detection of minimal tuberculous disease. But to this must be added the attempt to elicit a history of exposure, of hazardous occupation or of familial disease, together with a complete examination of the patient. Fluoroscopic examination may lead to a false sense of security for the physician not adequately trained in its use. But wisely and judiciously employed, as an adjunct to the usual complete medical examination, fluoroscopy should extend the physician's resources in the early diagnosis of tuberculosis and in the detection of conditions within the chest too small to give physical signs or too early to produce significant symptoms.

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MEDICAL EPONYM

COHNHEIM'S AREAS

Julius Cohnheim (1839–1884), assistant in the Pathological Institute of Berlin, published an article entitled "Ueber den feineren Bau der quergestreiften Muskelfaser [On the Microscopic Anatomy of Striated Muscle Fibers]" in Virchow's *Archiv für pathologische Anatomie und Physiologie und für klinische Medizin* (**34**: 606–626, 1865). A portion of the translation follows:

> The . . . frozen muscle . . . can be cut . . . with a chilled razor blade, and . . . cross sections may be prepared with the greatest ease. . . . If the cross section is spread . . . in a 0.5 per cent sodium chloride solution, avoiding all pressure . . . it appears under the microscope as a varying number of unequally compressed round or elliptical, somewhat refractile disks, between which may be seen traces of a threadlike connective tissue. These disks, which are cross sections of individual muscle fibers, . . . are enclosed and outlined by a definite, double circular or elliptical margin, obviously the visible expression of the sarcolemma. The surfaces of the disks enclosed by this outline are . . . composed of two distinct substances, one quite transparent and glistening, and one less transparent and dull . . . the dull substance is arranged in mosaic form in the shape of innumerable small triangles, quadrangles and pentagons, which are separated from each other by the narrow seams of the transparent substance. . . .

R.W.B.

MASSACHUSETTS MEDICAL SOCIETY

SECTION OF OBSTETRICS AND GYNECOLOGY*

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FATAL DOUBLE PNEUMONIA IN PREGNANCY

Mrs. M. B., a thirty-five-year-old para II, entered the hospital on December 31, 1938, with a diagnosis of pneumonia. She was approximately at term.

The family history was non-essential. The patient's past history was unimportant. One previous pregnancy was terminated by a low-forceps delivery. Catamenia began at eleven, were regular with a twenty-eight-day cycle and lasted one and a half days. The last menstrual period began on April 8, and confinement was expected on January 15, 1939.

At the time of the first examination about July 1 the patient weighed 147 pounds. The blood pressure was 120 systolic, 70 diastolic. The heart was not enlarged; there were no murmurs. The lungs were clear and resonant; there were no rales. The abdomen was soft; no masses and no areas of tenderness were noted. The fundus was forward, the size of a three months' pregnancy, and movable. On inspection the cervix showed a deep laceration on the left side.

The pregnancy progressed normally except for a very severe cold in November, which left the patient with a persistent cough. On December 30 the weight was 166 pounds. The blood pressure was 124 systolic, 80 diastolic. The cough persisted. She had no temperature but was advised to go into the hospital for the purpose of getting rid of the infection and of awaiting labor. This she planned to do on January 1, 1939.

On December 31, however, the patient telephoned that she was feeling much worse; she was advised to go directly to the hospital. The temperature on admission was 101°F., the pulse 120, and the respirations 32. An internist was called in consultation. He found dullness over the right back from the region of the midscapula to the base, diminished breath sounds and fremitus in this area, and bronchovesicular breathing in the fourth left interspace at the edge of the sternum. His impression was that she had lobar pneumonia, and he advised a blood culture, sputum typing and, if the type proved treatable, serum. The white-cell count was 21,050. Type 3 pneumococci were found in the sputum. Type 3 serum was started immediately, and 410,000 units were given during the next twenty-four hours.

On January 1, labor began. This was normal and comparatively rapid, the baby, a girl weighing 7 pounds, being delivered normally after a total labor of less than five hours. During labor, 1½ gr. of Nembutal was given as an analgesic. The patient was given no other anesthesia as she was in an oxygen tent. The baby survived.

The same evening, pneumonia developed in the left chest. The temperature was 102°F., and the pulse 108 and of good quality. The next morning, January 2, the patient was definitely worse. The white-cell count was 2300, and a blood transfusion was given. The patient went steadily downhill, and died during the evening of January 3.

Comment. This case illustrates the extreme seriousness of pneumonia during pregnancy. The patient was treated as conservatively as possible from the beginning. Although not ill, hospitalization was advised for the purpose of rest and in the hope that the persistent respiratory infection might clear up. Pneumonia developed before this could be accomplished. Medical consultation, typing, serum therapy, the use of an oxygen tent and constant nursing care accomplished nothing. As is so often true with sick pneumonia patients, labor was easy and apparently took nothing out of the patient. The small amount of Nembutal certainly could have done no harm, although its use as an analgesic in the presence of respiratory infection is generally contraindicated. Spinal anesthesia would have been ideal had operative interference been necessary. It is not unduly optimistic to say that, today, chemotherapy might have saved this patient's life.

*A series of selected case histories by members of the section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the section.

MISCELLANY

THE PHYSICALLY BELOW-PAR CHILD

In the early years of this century, the term "pretuberculous" was used to describe children who were in contact with an adult case of tuberculosis and those who were underweight or apparently below par in health. These children, it was believed, were in need of an abundance of fresh air, rest and additional food. Special open-air classes were organized for them on the theory that by such devices the development of tuberculosis might be prevented. As the years passed, the soundness of these ideas was challenged and recently a Committee on Care and Education of Below-Par Children has re-investigated the subject. Extracts of the report (*The Physically Below-Par Child.* 20 pp. New York: National Tuberculosis Association, 1940) of this committee follow.

Many school departments make special provision for so-called "exceptional" children, including the visually handicapped, the hard of hearing, those with heart disease and those presumably in danger of developing tuberculosis. Various terms have been used to describe these children, such as "delicate, undernourished, underweight, handicapped and lowered vitality." Because open-air classes have been stimulated largely by tuberculosis associations throughout the country, the National Tuberculosis Association has felt a responsibility to review the problem and therefore appointed a committee to study the situation.

Changing Concepts

In the early open-air classes, emphasis was placed on malnutrition and anemia — either or both of which were considered at that time to be predisposing factors in the development of tuberculosis — and on known contacts with an open case of tuberculosis. Today it is recognized that no matter how pale or undernourished a child may be, he will not develop tuberculosis unless he actually takes tubercle bacilli into his body. Therefore the term "pretuberculous" is no longer acceptable and its use should be discarded. The best way to prevent infection among children is to remove the case of tuberculosis from the home. Infection in a child can be detected by the tuberculin test. Tuberculous disease in children between the ages of five and fifteen years is relatively unimportant; the tubercle bacilli are apparently walled off and cause little damage. The walling-off process seems to operate just as rapidly and completely if the child remains in school and participates in the normal activities of child life as when strict bedrest is instituted. A school child who has a positive tuberculin reaction but whose x-ray reveals nothing abnormal, who is apparently in good health, and who after a thorough investigation of his associates at home and elsewhere is found not to be in contact with an open case of tuberculosis, usually does not need special care. Nor is such a child capable of transmitting tuberculosis. He is, however, entitled to the health supervision which is due every child. Throughout adolescence and early adult life he should be given an x-ray examination annually and watched.

There remains a group of tuberculous children for whom special care is necessary. These children may have such extensive infection that the body cannot well control it, or clinically serious tuberculous disease may have begun. Such children, both for their own welfare and also to protect others from the disease, need special care. The question arises whether it is not better to arrange home or institutional care for this group. Their number in any one locality is usually so small that either the expense of a special teacher for them or the transportation costs of collecting daily in one place a sufficient number to warrant a full-time teacher, is economically impractical. It is believed that such convalescent care as is needed must be worked out in the light of available local resources.

Below-Par Children

"Malnutrition" is a loosely used term. Underweight is not necessarily a symptom of malnutrition, nor are all undernourished children underweight. The judgment of the physician based on one routine physical examination is not always dependable, for studies have shown that competent physicians vary widely in their independent judgments of nutritional status in the same children. Nutrition is not a single entity due to a single cause. Vitamin status, the chemical constituents of the blood, and types and degrees of anemia are all recognized as important indices of nutritional status.

However, the physician can with some degree of reliability select those children who are physically below par. They include those who exhibit such symptoms as lack of stamina, lassitude, failure to gain weight, and so forth. Only a comparatively small number are below par primarily because of a condition needing medical care. For those who do need medical care the course of action should be to set the machinery going to obtain adequate medical care.

A second group are those who are temporarily below par following illnesses or operations. Often such a child is better off in the ordered ways of school life although he is not able to carry a full program of work and activity.

In the great majority of below-par children the cause is usually determinable only after study of the child in relation to his home and family. Poverty, ignorance and maladjustment may be factors. Only after a careful study of such factors can one hope to solve the problem.

Are Special Classes Necessary?

Special classes for "exceptional" children have undoubtedly made a contribution to the improved health of school children. One type, the open-air class, has emphasized fresh air, food and rest. Fresh air has mistakenly been interpreted as meaning large volumes of outdoor air regardless of temperature. But recent studies have shown that cool air in gentle motion provides the best condition for comfort and for health. Supplementary feeding at school is open to question. Adequate food and regular meals at home are best, and supplementary feeding, if indicated, must follow the needs of the individual case. Whatever the cause of inadequate food may be, the solution lies not in special classes but in home adjustments. Rest is an important need for the below-par child. Open-air classes have demonstrated the value of periods of rest. The amount and the duration of the additional rest requirement for the individual child should be based on medical opinion.

Special Care

Against this background of change in theories and facts the present-day problem of how to care for the below-par child must be met. Groups including the deaf, the crippled, those with heart disease and the visually handicapped need special adjustment of school procedures. For children with clinical tuberculosis special provision must be made for they are sick children. There remains a sizable but less well-defined group which includes children below par because of a condition needing medical care, or, temporarily, following an illness or operation, or from a variety of causes which may be socioeconomic and related to the home. The school should provide for these below-par children a lightened school program together with extra rest. The easiest way to do this is by means of the segregated special class, but it is costly and educationally and socially unsatisfactory. How can the school best meet its problem?

The school physician can, in the course of school physical examinations, select the below-par group for intensive study. The school physician, nurse and teacher can, by follow-up study of the child, the parents and the home, gain a better understanding of the underlying causes of the condition. These causes can, to a large extent, be removed or mitigated by making social and economic adjustments in the home.

In summary, the responsibility of the care of the below-par child should be divided between the home and the school. Segregation in special classes is not necessary and is detrimental to the child's education and social development. Supplementary feeding at school is open to ques-

tion. School procedures should be adopted for individual children to provide for rest periods, a lightened school program with avoidance of undue strain, and attendance at regular classes for as much of the academic program as the child is able to carry. This program, formulated for elementary school children, should also be extended to junior and senior high-school students. — Reprinted from *Tuberculosis Abstracts* (July, 1940).

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR JUNE, 1940

Disease	June 1940	June 1939	Five-Year Average*
Anterior poliomyelitis	2	3	4
Chicken pox	851	854	1119
Diphtheria	9	7	16
Dog bite	1292	1587	1398
Dysentery, bacillary	11	1	10
German measles	64	75	1378
Gonorrhea	292	415	431
Lobar pneumonia	227	236	278
Measles	5227	3918	2808
Meningococcus meningitis	1	5	8
Mumps	641	501	696
Paratyphoid B fever	6	7	12
Scarlet fever	381	439	760
Syphilis	389	417	436
Tuberculosis, pulmonary	103	275	308
Tuberculosis, other forms	25	36	38
Typhoid fever	7	9	7
Undulant fever	3	4	3
Whooping cough	578	551	555

*Based on figures for preceding five years.

RARE DISEASES

Anterior poliomyelitis was reported from: Chicopee, 1; Worcester, 1; total, 2.

Anthrax was reported from: Lynn, 1; total, 1.

Diphtheria was reported from: Boston, 1; Framingham, 2; Methuen, 1; Sandwich, 2; Worcester, 3; total, 9.

Dysentery, bacillary, was reported from: Boston, 1; Burlington, 5; Dedham, 1; Somerville, 1; Swampscott, 1; Tewksbury, 1; Woburn, 1; total, 11.

Infectious encephalitis was reported from: Brockton, 1; Greenfield, 1; Salem, 1; total, 3.

Meningococcus meningitis was reported from: Boston, 1; total, 1.

Paratyphoid B fever was reported from: Cambridge, 1; Fall River, 1; Marblehead, 1; Marion, 1; Somerville, 1; West Boylston, 1; total, 6.

Septic sore throat was reported from: Boston, 4; Cambridge, 2; Danvers, 6; Westboro, 1; total, 13.

Tetanus was reported from: Burlington, 1; West Stockbridge, 1; total, 2.

Trichinosis was reported from: Melrose, 1; Montague, 3; Quincy, 3; Wellesley, 5; total, 12.

Typhoid fever was reported from: Boston, 1; Brockton, 1; Marlboro, 1; Mattapoisett, 1; Somerville, 1; Weymouth, 2; total, 7.

Undulant fever was reported from: Auburn, 1; Hopedale, 1; North Adams, 1; total, 3.

Pulmonary tuberculosis was reported at a record low figure both for this and any other month.

Measles and whooping cough were reported above the five-year average.

Meningococcus meningitis was reported at a record low figure, with the exception of that for 1933 which was equaled.

Tuberculosis (other forms) showed record low incidence.

Bacillary dysentery, lobar pneumonia, mumps and undulant fever were reported at expected levels.

Anterior poliomyelitis, chicken pox, diphtheria and German measles were reported below the five-year average.

Dog bite showed expected high seasonal incidence.

Animal rabies was reported at a low figure. Active foci were reported in Canton, Medway and Norwell.

MAINE NEWS

New Officers of Maine Medical Association

Dr. P. L. B. Ebbett, of Houlton, Maine, was elected president-elect of the Maine Medical Association at the annual meeting held at Rangeley Lakes on June 23, 24 and 25.

The following standing committees were appointed:

Scientific Committee

H. C. Scribner, Bangor, chairman
C. C. Weymouth, Farmington
E. E. O'Donnell, Portland
L. H. Smith, Winterport

Medical Advisory Committee

C. M. Robinson, Portland, chairman
Allan Woodcock, Bangor
S. A. Cobb, Sanford
W. H. Bunker, Calais
C. H. Jameson, Rockland
F. H. Jackson, Houlton
F. B. Ames, Bangor
The Secretary, ex-officio

Committee on Medical Education and Hospitals

A. P. Leighton, Portland, chairman
C. D. North, Rockland

Public Relations Committee

W. E. Kershner, Bath, chairman
F. T. Hill, Waterville
H. C. Knowlton, Bangor
C. W. Kinghorn, Kittery
W. A. Ellingwood, Rockland

Committee on Social Hygiene

B. B. Foster, Portland, chairman
E. S. Merrill, Bangor
C. B. Popplestone, Rockland

Cancer Committee

Mortimer Warren, Portland, chairman
Magnus Ridlon, Bangor
E. H. Risley, Waterville
William Holt, Portland
Bertrand Beliveau, Lewiston

Publicity Committee

T. A. Foster, Portland, chairman
The Secretary, ex-officio

NOTE

At the annual meeting of the Massachusetts Board of Registration in Medicine in July, Dr. Francis R. Mahony, of Lowell, and Dr. Stephen Rushmore, of Boston, were respectively elected chairman and secretary for the ensuing year.

CORRESPONDENCE

PHYSICIANS NEEDED FOR ARMY SERVICE

To the Editor: With the likelihood of an augmented U. S. Army existing for a prolonged period, the War Department has been able to plan accordingly in considering medical personnel requirements.

In reference to extended active duty for officers of the Medical Corps Reserve, important changes have been made. Reserve officers may now serve in Hawaii, Panama and other United States possessions, and may receive yearly extensions of active duty for an indefinite number of years until the international situation clarifies and until the future can be viewed with more certainty.

Attached is a statement pertaining to extended active duty for physicians, which probably will be of interest to your readers.

JAMES E. BAYLIS,
Colonel, Medical Corps, U. S. Army,
Executive Officer.

War Department,
Office of the Surgeon General,
Washington, D. C.

* * *

The physician, like every other American, has become actively interested in our national security and stands ready to contribute his services as required for military preparedness.

The immediate problem in this connection is one that concerns the War Department and, primarily, the young physician. The War Department must procure sufficient additional personnel from the medical profession to augment the medical services of the Regular Army as the various increases are made in the strength of the Regular Army, as authorized by Congress to meet the partial emergency. The young physician is especially concerned because for him to serve with the Regular Army is usually advantageous, and is often convenient.

Present plans of the War Department are designed to make service attractive and instructive for the young physician. If the physician holds a Medical Corps Reserve commission he can be ordered to active duty if he so requests. If he does not hold a commission, but is under thirty-five years of age and is a comparatively recent graduate of an accredited school, he may secure an appointment in the Medical Corps Reserve for the purpose of obtaining extended active duty for a period of one year or longer. Duty is given at general hospitals and station hospitals and with tactical units, and embraces all fields of general and specialized medicine and surgery. Excellent postgraduate training is obtainable in connection with aviation medicine. After serving six months of active duty in the continental United States, a reserve officer may request duty in Hawaii, Panama or other United States territories and possessions. The initial period for duty is for one year, and yearly extensions are obtainable thereafter until the international situation becomes more clarified and the domestic military program becomes stabilized.

Many young doctors who have served with the Regular Army on extended active duty have taken the competitive examination for entrance into the Medical Corps of the Regular Army. Extended active duty affords an excellent opportunity for the physician to observe modern military medicine and the facilities that exist for a complete and comprehensive medical practice.

Pay is according to rank, and, including subsistence and quarters allowances for an officer with dependents, amounts to an annual sum of $3905 for a captain and $3152 for a first lieutenant; or, without dependents, to an annual sum of $3450 for a captain and $2696 for a first lieutenant. In addition, reimbursement is made for travel to duty station and return.

Further information may be obtained by writing to The Surgeon General, U. S. Army, Washington, D. C.

LICENSE REVOKED

To the Editor: The license of Dr. Anthony Peter Carogana, 672 Broadway, Chelsea, was revoked by the Board of Registration in Medicine on July 11 because of conviction in court of abortion.

STEPHEN RUSHMORE, M.D., *Secretary,*
Board of Registration in Medicine.

State House,
Boston.

INTERN'S LICENSE LIMITED TO THREE YEARS

To the Editor: I am enclosing for your information a copy of the text of a circular letter which has been sent to the superintendents of all the hospitals in the State.

STEPHEN RUSHMORE, M.D., *Secretary,*
Board of Registration in Medicine.

State House,
Boston.

* * *

This is to inform you that at the meeting of the Board of Registration in Medicine held June 27, 1940, it was

VOTED: To limit the period for which an intern's license is to be issued to three years.

It is the opinion of the Board that if a physician wishes to practice in Massachusetts for more than three years he should be registered as a qualified physician, which requires an examination.

As applications are made to the Board the applicants will be informed as to the change of ruling, but you are requested to bring this matter to the attention of the interns and residents now in your institution. The new ruling does not affect licenses already issued, but will apply to new licenses and to extensions.

REPORTS OF MEETINGS

HARVARD MEDICAL SOCIETY

A regular meeting of the Harvard Medical Society was held at the Peter Bent Brigham Hospital on March 26, with Dr. Soma Weiss presiding.

The first case presented was that of a thirty-five-year-old man who entered the hospital three weeks before, with a one-day story of crampy abdominal pain unrelieved by soda or attempts at vomiting, and culminating in an episode of excruciating epigastric pain and incipient shock. For two years the patient had been known to have chronic ulcerative colitis, for which he had been admitted to the medical wards on three occasions, the last time two weeks before the present admission. He had been feeling well during the interim. On physical examination the chief findings were extreme pallor and the abdominal signs. There was marked spasm of the abdominal muscles, accompanied by tenderness only in the upper quadrants, and reflex tenderness referred to a point just above the umbilicus. The temperature was 100.2°F., the pulse 82, and the

respirations 24. The white-cell count was 21,000, and the red-cell count 3,800,000. The urinary diastase was positive in a dilution of 1:234. Treatment consisted of watchful waiting, together with Wangensteen drainage, high-Fowler's position and parenteral fluids. Gradual improvement occurred, and all signs and symptoms had disappeared after fifteen days.

Dr. Joseph A. Capps stated that in Chicago such a complex would be suspected of being due to amebic dysentery, with or without liver involvement, in view of their recent experience with bizarre cases. Diarrhea and even cramps may be lacking and yet the patient turn out to have amebiasis, with hepatitis or liver abscess. Dr. Joseph H. Pratt cited the elevated pulse and temperature, as well as the tender abdomen on the first day, as being distinctly against pancreatitis. He stressed the value of a diastase curve rather than a single determination in questionable cases of pancreatitis, and advocated the use of urinary rather than blood diastase tests. He added, in reply to a question, that pancreatitis secondary to perforation of an abdominal viscus may give an elevated diastase level. Dr. Weiss emphasized the importance of conservative treatment in most cases of acute pancreatitis, unless there are surgical complications.

The medical case was that of a thirty-two-year-old man who entered the hospital with a one-day history of dyspnea, pain in the right chest and hemoptysis. At the age of seven years there had been chorea, and there was an attack of acute rheumatic fever four years later. At thirteen he was refused life insurance on the basis of "heart disease." His first hospital admission was at twenty-one, when he complained of dyspnea, cough and pain in the right chest. At that time physical examination revealed enlargement of the heart to the right and left, marked systolic and diastolic murmurs and a thrill at the apex. In the following eleven years there were ten admissions, nine of them for the same symptoms and with the same physical findings as originally. The last episode, six months previously, was complicated by a left hemiplegia and a questionable pulmonary infarct. Physical findings on the present admission were unchanged in regard to the heart, but there were, in addition, dullness and basal rales in the right axilla.

Dr. Capps considered the presence of hemoptysis and the localization of the pleural pain very suggestive of lung infarct. Dr. Paul D. White said that the roentgenograms indicated a tricuspid-valve lesion despite the lack of physical findings. He suggested that a deep neck pulsation might be felt in the absence of superficial pulsation and distention. Dr. Weiss believed that the lack of these findings and the absence of a tricuspid murmur ruled out this lesion. Dr. Samuel A. Levine stated that the diagnosis in such a case is difficult; he suggested that it is only when there is a sustained elevation of venous pressure after the patient's condition has improved that one is justified in using that means of diagnosing tricuspid stenosis. He reminded the audience of the advantage of such a lesion in mitral stenosis, in which case the prognosis is improved over that of the uncomplicated case.

The speaker of the evening was Dr. Joseph A. Capps, of Chicago, whose subject was "The Prognosis in Bacterial Endocarditis." It was the surprising recovery of one of his office patients in 1910 that stimulated Dr. Capps to investigate the outcome of subacute bacterial endocarditis, particularly in office and outpatient clinics where less severe cases are found. Postmortem evidence of healed bacterial endocarditis was reported as early as 1900, and the stages of active bacterial growth, vegetations without bacteria and complete healing were recognized.

Dr. Capps suggested that many mild cases may never be diagnosed due to the difficulty of establishing adequate criteria for diagnosis. Positive blood cultures alone are not necessarily significant, for they may be present in cases of tonsillitis, sinusitis and otitis media due to *Streptococcus viridans*. Also, transient murmurs may accompany hemorrhage or fever. Therefore, the speaker suggested as necessary criteria the presence of the characteristic evanescent murmurs, a consistent temperature, a focus of infection and a positive blood culture. Embolic phenomena may or may not be present.

A study of the rare reports of clinical recoveries indicated that there were epidemics during which the majority of recovered cases occurred, probably due to less severe infection. Furthermore, comparison of the incidence of subacute bacterial endocarditis from various clinics revealed a definite peak in 1921 to 1924 with a general decrease since then. It was during that short period that the majority of recoveries took place, and Dr. Capps has had none since 1924. He suggested the use of the term arrest rather than recovery.

Of 139 cases which he has observed, Dr. Capps had 10 patients who survived for one to two years and then died of recurrence or of cardiac failure. There are 11 patients who lived from eight to nineteen years from the onset. An investigation of the findings in the recovered as contrasted with the fatal cases revealed the milder characteristics of the former (Table 1).

TABLE 1. *Findings in Recovered and Fatal Cases of Bacterial Endocarditis.*

FINDING	RECOVERED CASES	FATAL CASES
Rheumatic fever	54%	68%
Temperature	99 to 101°F.	101 to 105°F.
Splenomegaly	35%	75%
Hematuria and albuminuria	45%	75%
Petechiae	25%	80%
Cerebral embolus	—	20%
Osler nodes	—	8%

In regard to treatment, Dr. Capps stated that nothing is specific; he has used sodium cacodylate in all his cases. Although the use of sulfanilamide and its related compounds, with or without heparin, appears promising, the speaker predicted that longer follow-ups may prove the enthusiasm premature. He concluded that enforced and prolonged bedrest in mild cases may lead to cure. He reminded the group in closing that recovery does not necessarily rule out the possibility of the patient's having had subacute bacterial endocarditis.

Dr. White reported the only recovery known to Boston hospitals, wherein a patient lived five years before dying of a new attack, with old healed lesions being proved at autopsy. A recent case in which the patient died of acute rheumatic fever was shown at autopsy to have a recently healed bacterial endocarditis. The latter patient was treated with heparin and sulfanilamide, a method that has shown encouraging results during the past two years. There has been one other case apparently arrested out of 26 thus treated. On the whole, the drugs are considered definitely beneficial, since life seems to be prolonged and the patient made more comfortable.

Dr. Samuel A. Levine suggested that the lack of reported cures in Boston may be attributed to skepticism toward the diagnosis, for he recalled a case which in retrospect was characteristic but otherwise diagnosed since the patient recovered. Cases with obscure sustained fevers or acute rheumatic fever may well include some of bacterial endocarditis, he stated, particularly since bacteriological methods at best are only 70 to 80 per cent positive in those cases in which at autopsy *Streptococcus viridans* is recovered from the heart valves.

NOTICES

ANNOUNCEMENT

RALPH VOLK, M.D., announces the removal of his office from 311 Commonwealth Avenue, Boston, to 375 Commonwealth Avenue, Boston.

CONSULTATION CLINICS FOR CRIPPLED CHILDREN IN MASSACHUSETTS, UNDER THE PROVISIONS OF THE SOCIAL SECURITY ACT

CLINIC	DATE	ORTHOPEDIC CONSULTANT
Lowell	August 2	Albert H. Brewster

No other clinics will be held during the month of August.

SOCIETY MEETINGS AND CONFERENCES

SEPTEMBER 2–6 — American Congress of Physical Therapy. Page 862, issue of May 16.

OCTOBER 6–11 — Annual meeting of the American Academy of Ophthalmology and Otolaryngology. Page 81, issue of July 11.

OCTOBER 8–11 — American Public Health Association. Page 655, issue of April 11.

OCTOBER 11, 12 — Pan-American Congress of Ophthalmology. Page 898, issue of May 23.

OCTOBER 14–25 — 1940 Graduate Fortnight of the New York Academy of Medicine. Page 938, issue of May 30.

OCTOBER 21 — American Board of Internal Medicine. Page 369, issue of February 29.

JANUARY 4, 1941 — American Board of Obstetrics and Gynecology. Page 1064, issue of June 20.

APRIL 21–25, 1941 — American College of Physicians. Page 1065, issue of June 20.

DISTRICT MEDICAL SOCIETY

MIDDLESEX NORTH

JULY 31.

OCTOBER 30.

BOOKS RECEIVED

The receipt of the following books is acknowledged, and this listing must be regarded as a sufficient return for the courtesy of the sender. Books that appear to be of particular interest will be reviewed as space permits. Additional information in regard to all listed books will be gladly furnished on request.

Modern Dermatology and Syphilology. By S. William Becker, M.D. associate professor of dermatology and syphilology, Kuppenheimer Foundation, University of Chicago; and Maximillian E. Obermayer, M.D., assistant professor of dermatology and syphilology, Kuppenheimer Foundation, University of Chicago. 4°, cloth, with 461 illustrations and 32 colored plates. Philadelphia: J. B. Lippincott Company, 1940. $12.00.

Psychology and Psychotherapy. By William Brown, D.M. (Oxon.), D.Sc. (Lond.), F.R.C.P., Wilde Reader in Mental Philosophy and director of the Institute of Experimental Psychology, University of Oxford, etc. Fourth edition. 8°, cloth, 260 pp. Baltimore: Williams & Wilkins Company, 1940. $4.75.

The Surgery of the Alimentary Tract. By Sir Hugh Devine, M.S., F.R.A.C.S., F.A.C.S., formerly senior surgeon, St. Vincent's Hospital Clinical School, Melbourne, Stewart Lecturer in Surgery, Melbourne University, etc. 8°, cloth, with 690 illustrations, some in color. Baltimore: Williams & Wilkins Company, 1940. $15.00.

The Public Health Nurse and Her Patient. By Ruth Gilbert, supervisor of social work, Psychiatric Service in the Community, New Haven, Connecticut; formerly mental health supervisor, Visiting Nurse Association, Hartford, Connecticut. 8°, cloth, 396 pp. New York: Commonwealth Fund, 1940. $2.25.

A Method of Anatomy, Descriptive and Deductive. By J. C. Boileau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edin.), professor of anatomy, University of Toronto. Second edition. 4°, cloth, 794 pp., with 651 illustrations. Baltimore: Williams & Wilkins Company, 1940. $6.00.

A Handbook for Dissectors. By J. C. Boileau Grant, professor of anatomy, University of Toronto; and H. A. Cates, associate professor of anatomy, University of Toronto. (A companion volume to *A Method of Anatomy.*) 12°, cloth, 239 pp., with 3 illustrations. Baltimore: Williams & Wilkins Company, 1940. $2.50.

Cancer: A manual for practitioners. The Committee on Publications: George W. Holmes, M.D., chairman, Shields Warren, M.D., and Ernest M. Daland, M.D. Edited by Channing C. Simmons, M.D. 8°, cloth, 284 pp. Boston: Rumford Press, 1940. $2.00.

A Textbook on Physiology. By William H. Howell, Ph.D., M.D., ScD., LL.D., emeritus professor of physiology, Johns Hopkins University, Baltimore. Fourteenth edition, thoroughly revised. 8°, cloth, 1117 pp., with 330 illustrations. Philadelphia and London: W. B. Saunders Company, 1940. $7.50.

Medical Nursing. By Edgar Hull, M.D., F.A.C.P., clinical professor of medicine, Louisiana State University School of Medicine, visiting physician, Charity Hospital of Louisiana, New Orleans; Christine Wright, R.N., B.S., instructor of nursing arts, Charity Hospital School of Nursing, New Orleans, etc.; and Ann B. Eyl, B.S., assistant dietitian, Cook County School of Nursing, Chicago, formerly instructor in Home Economics, University of Kentucky, Lexington, etc. 8°, cloth, with 168 illustrations, including 11 color plates. Philadelphia: F. A. Davis Company, 1940. $3.50.

Medical Diseases of War. By Sir Arthur Hurst, M.A., D.M. (Oxon.), F.R.C.P., lieutenant-colonel, late R.A.M.C., consulting physician to Guy's Hospital, etc.; with the cooperation of H. W. Barber, M.A., M.B. (Cantab.), F.R.C.P., physician-in-charge of the Skin Department, Guy's Hospital; F. A. Knott, M.D. (Lond.), M.R.C.P., bacteriologist to Guy's Hospital; and T. A. Ross, M.D. (Edin.), F.R.C.P., late medical director of Cassel Hospital for Functional Nervous Disorders. 8°, cloth, 327 pp., with 37 illustrations and 4 plates. Baltimore: Williams & Wilkins Company, 1940. $5.50.

The Chemistry of Natural Immunity. By William Frederick Koch, Ph.D., M.D. 8°, cloth, 199 pp., with 40 illustrations. Boston: Christopher Publishing House, 1938. $2.00.

A Man Who Found a Country. By Dr. A. Nakashian. 8°, cloth, 279 pp. New York: Thomas Y. Crowell Company, 1940. $2.75.

The Head and Neck in Roentgen Diagnosis. By Henry K. Pancoast, M.D., late professor of radiology and director of the Department of Radiology, University of Pennsylvania; Eugene P. Pendergrass, M.D., professor of radiology and director of the Department of Radiology, University of Pennsylvania; and J. Parsons Schaeffer, M.D., Ph.D.,

professor of anatomy and director of the Daniel Baugh Institute of Anatomy, Jefferson Medical College. 4°, cloth, with 1251 illustrations. Springfield, Illinois: Charles C Thomas, 1940. $12.50.

It Is Your Life: Keep healthy, stay young, live long. By Max M. Rosenberg, M.D. 8°, cloth, 450 pp. New York: Scholastic Book Press. $2.50.

Simplified Diabetic Manual, with 163 International Recipes (American, Jewish, French, German, Italian, Armenian, etc). By Abraham Rudy, M.D., associate physician and chief of the Diabetic Clinic, Beth Israel Hospital, Boston, instructor in medicine, Tufts College Medical School, etc. Introduction by Dr. Frederick M. Allen. 8°, 216 pp., with 14 tables, and 18 illustrations. New York: M. Barrows & Company, Inc. $2.00.

Endocrine Therapy in General Practice. By Elmer L. Sevringhaus, M.D., F.A.C.P., professor of medicine, University of Wisconsin, Madison, Wisconsin; editor, Department of Endocrinology, *The Year Book of Neurology, Psychiatry and Endocrinology.* 8°, cloth, 239 pp., with 49 illustrations. Chicago: Year Book Publishers, Inc. $2.75.

Dermatologic Therapy in General Practice. By Marion B. Sulzberger, M.D., assistant clinical professor of dermatology and syphilology, Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital of Columbia University, associate attending dermatologist, Montefiore Hospital, New York City; and Jack Wolf, M.D., attending dermatologist and syphilologist, Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital of Columbia University, director of dermatology, New York City Cancer Institute. 8°, cloth, 680 pp., with 65 illustrations and 25 tables. Chicago: Year Book Publishers, Inc. $4.50.

Green's Manual of Pathology. Revised and enlarged by H. W. C. Vines, M.A., M.D., director of the Charing Cross Hospital Institute of Pathology. Sixteenth edition. 8°, cloth, with 701 illustrations. Baltimore: Williams & Wilkins Company, 1940. $8.50.

Clinical Diabetes Mellitus and Hyperinsulinism. By Russell M. Wilder, M.D., Ph.D., F.A.C.P., professor and chief of the department of medicine, The Mayo Foundation for Medical Education and Research, University of Minnesota, head of the Section on Metabolism Therapy, Division of Medicine, The Mayo Clinic, Rochester, Minnesota. 8°, cloth, 459 pp., with 19 illustrations. Philadelphia and London: W. B. Saunders Company, 1940. $6.00.

BOOK REVIEWS

Mineral Metabolism. Alfred T. Shohl, M.D. 8°, cloth, 384 pp., with 41 tables. New York: Reinhold Publishing Corp., 1939. $5.00.

This valuable book is one of the series of scientific and technologic monographs published as part of a joint project of the American Chemical Society and the National Research Council. The editors include such eminent figures as W. A. Noyes and W. Mansfield Clark; they are responsible for the selection of timely subjects and of authors who are recognized as authorities in their respective fields. They have also reviewed critically the manuscripts submitted. The co-operative effort thus represented in this monograph has succeeded admirably.

The subject of mineral metabolism is of increasing importance due to recent advances in the physiology of acid-base balance and of water metabolism, to the newly established roles of sodium and potassium in adrenal insufficiency and to the recent interest in traces or small quantities of certain essential minerals, corresponding to the small but essential amounts encountered among the vitamins. The author, a research associate in pediatrics at Harvard University, has for more than ten years worked in the fields of acid-base equilibrium and mineral metabolism. He has also had considerable clinical experience, having been associate professor of pediatrics at Western Reserve University from 1928 to 1933.

The book is compact enough to be read in its entirety; yet, with its well-chosen bibliography by chapters, it will serve as a reference guide for detailed study. There is a brief introductory chapter concerned with general orientation and a concise list of definitions of terms. Those who do not yet feel quite at home among "milliequivalents" and "osmols" will be grateful for its inclusion. There follows a simple description of the mineral composition of the body and its components and organs and of the various secretions, excretions and internal secretions. The roles of certain ionic groups and elements, such as total base, chloride, bicarbonate, calcium and magnesium, phosphorus, sulfur, iron and iodine, are summarized, and those minerals found in small but often essential traces are reviewed. The main emphasis of the concluding chapters, however, is on physiologic functions, and this discloses the complex relations of several elements under each function. Water metabolism, acid-base equilibrium, growth, pregnancy and lactation are some of the functions thus discussed.

This monograph will be of great interest to the general medical reader as well as to the student of biochemistry and nutrition.

Twilight of Man. By Earnest Albert Hooton. 8°, cloth, 308 pp., with 17 illustrations. New York: G. P. Putnam's Sons, 1939. $3.00.

The author's scholarship and literary skill make this book attractive to all readers, lay and professional. The title suggests both optimism and pessimism with respect to man. The reader will not be disappointed despite the writer's incisive criticisms. The first chapter discusses "The Simian Basis of Human Mechanics or Ape to Engineer." In the second chapter, "The Lantern of Diogenes" is raised in the hope of arresting the course of man's degeneration. "The Making and Mixing of Human Races" is set forth in the next four chapters. The seventh chapter concerns itself with "Change and Decay in Americans: A plain talk to college students." The next deals with "Noses, Knowledge, Nostalgia: The marks of a chosen people." Then follows a chapter on "The Anthropological Prospect of the Survival of Human Liberty." The tenth and final chapter considers "The Wages of Biological Sin." One may say with certainty that many pleasant, instructive hours await those who have not yet read this Shavian-like book.

The Essentials of Medical Treatment. By David Murray Lyon, M.D., D.Sc., F.R.C.P. (Edin.). 8°, cloth, 448 pp., with 19 illustrations. Edinburgh: Oliver & Boyd, 1939. 15s.

This book comes from English sources, the author being professor of clinical medicine at the University of Edinburgh. He has covered his subject thoroughly, and the book should be of value to the general practitioner of

Great Britain. All the drugs are listed in the dosages and form given by the British *Pharmacopoeia* and *National Formulary,* which do not in many cases conform to the standards in use in the United States. References are made, moreover, to local English spas and similar places of treatment. It is possible that a few American physicians could use this book to advantage.

Proctoscopic Examination and Diagnosis and Treatment of Diarrheas. By M. H. Streicher, M.S., M.D. 8°, cloth, 149 pp., with 39 illustrations. Springfield, Illinois, and Baltimore, Maryland: Charles C Thomas, 1940. $3.00.

This book presents a brief outline of proctology, the diagnosis and treatment of diarrheas and the technic of proctoscopy. It is divided in two sections. The first deals with the technic of proctoscopy, presents a tabulation of 7406 proctoscopic examinations and gives a brief summary of the findings in each of the common anorectal diseases. The second section deals with the classification of diarrheas and briefly presents their main diagnostic and therapeutic features.

The author makes an earnest plea throughout the book for the use of the proctoscope as a diagnostic aid in a wide variety of conditions, both local and systemic. His classification of diarrheas is very comprehensive, although only a brief outline of the diagnosis and treatment of each type is given.

There are several simple drawings and photographs illustrating the gross pathologic anatomy of the common diseases of the rectum and colon.

Principles and Practice of Aviation Medicine. By Harry G. Armstrong, B.S., M.D. 8°, cloth, 496 pp., with 86 illustrations. Baltimore: Williams & Wilkins Co., 1939. $6.50.

With the rapid growth of aviation, it is not surprising that a book on the subject of aviation medicine should appear. Dr. Armstrong, a member of the Medical Corps of the U. S. Army and director of the Aero Medical Research Laboratory, has written a book primarily intended as a textbook for students and as a reference work for those actively engaged in the practice of aviation medicine. The volume consists of twenty-seven chapters covering practically every aspect of this interesting subject; it is accurately compiled, with excellent illustrations, references to the literature and an index.

This book can be highly recommended for a selected group of physicians. There is an interesting introductory chapter on the history of aviation in relation to medicine, particular emphasis, naturally, being put on the development of the specialty in America. Considering the size of the book and the comparatively few illustrations, the price seems unnecessarily high.

Population, Race and Eugenics. By Morris Siegel, M.D. 12°, cloth, 206 pp. Hamilton, Ontario: Published by the author, 1939. $3.00.

The author considers the aims of eugenics to be the discovery of those negative factors that will ultimately lead to a considerable reduction in the incidence and frequency of congenital degenerations and hereditary mental disorders and the further search of the positive factors that lead to a negative correlation between fertility and cultural and intellectual attainment. The first part of the book is titled "Positive Eugenics" and is considered under the chapter headings of "Population and Eugenics," "Etiology," "Constructive Recommendations," "Racial Theories in Relation to Eugenics" and "Rational Marriage." The second part, which is titled "Restrictive Eugenics," is discussed under the chapter headings of "The Feebleminded," "Mental Disorders," "Epilepsy," "Restrictive Measures" and "General Conclusions."

The author has carefully thought out his approach and has written in a style that will easily engage the interest of the average general reader, as well as that of those who professionally deal with this subject matter.

Manual of Public Health Nursing. Prepared by the National Organization for Public Health Nursing (Member of the National Health Council). Third edition. 12°, cloth, 529 pp. New York: Macmillan Co., 1939. $2.50.

This manual has been entirely rewritten, and much new material has been added. Its purpose is to suggest procedures to serve as a guide to the public-health nurse in the field. Parts I and II are devoted to the discussion of problems of administration and organization and of family-health service. Part III, comprising three fifths of the volume, goes into the details of actual nursing procedure with respect to maternity cases, child health, school children, industrial cases, tuberculosis, genitoinfectious diseases and orthopedic cases. An appendix prescribes minimal qualifications for those appointed to positions in public-health nursing. The book is eminently practical and is to be commended for its strictly professional and businesslike presentation of factual information. One can find remarkably little to disagree with in the entire volume.

Beyond the Clinical Frontiers: A psychiatrist views crowd behavior. By Edward A. Strecker, A.M., Sc.D., Litt.D., M.D. 8°, cloth, 210 pp. New York: W. W. Norton & Co., 1940. $2.00.

Dr. Strecker, the distinguished professor of psychiatry at the University of Pennsylvania, has had published in book form his series of Salmon Lectures, given at the New York Academy of Medicine, in which he summarizes some of the modern advances in psychiatry, particularly in relation to mental hygiene and planning for the future. The book is well written and adequately covers the field. There is an excellent bibliography. As a summary of modern psychiatry in relation to the world in general, this book is highly recommended.

Handbook of Skin Diseases. By Leon Hugh Warren, B.A., M.D., M.Sc. (Med.), with a foreword by Frederick D. Weidman, M.D. 12°, cloth, 321 pp. New York and London: Paul B. Hoeber, Inc., 1940. $3.50.

This manual is intended to supply a much-needed volume in dermatological literature, namely a "memory aid" and a reference guide of some two hundred and fifty skin diseases. In both these concepts it serves the purpose, both for the general practitioner and the teacher of dermatology.

The synonyms and eponyms are complete and cross indexed for ready reference. The essential nature of each skin disease, rather than an extensive clinical description of the lesion, is stressed, and the histopathological picture of the lesion, though brief, is adequate.

The chapter on the general principles of therapy is especially informative and useful to the practitioner, as no group of diseases is more poorly treated by the busy doctor than is that embracing diseases of the skin.

This volume is not a textbook or a quiz compend but can be recommended as a useful desk companion for the busy practitioner of medicine.

Treatment and What Happened Afterward: A study from the Judge Baker Guidance Center. By William Healy and Augusta F. Bronner. 8°, paper, 54 pp. Boston: Judge Baker Guidance Center, 1939. 50 cents.

This is an able and thoughtful follow-up study of the later adjustment of 400 cases treated five to eight years previously at the Judge Baker Guidance Center. It should be noted that the title does not read "The Results of Treatment of Delinquent and Psychologically Abnormal Children in a Child Guidance Center," because no one knows what role greater maturation, improved social environment and other circumstances may have played to induce the predominantly favorable results here reported. In fact the scientific question which the authors pose for themselves cannot really be answered except by the use of control groups, and these they do not use. In that sense they have posed for themselves an unanswerable question. However, sometimes unanswerable questions are the most fruitful ones in that they stimulate thought, improve standards of treatment and achieve other good social results.

In these 400 cases, 207 had personality or behavior problems; 137 were non-court delinquents; and 56 were delinquents referred by juvenile courts. The types of personality disorder and of delinquent conduct and the sources and ages at referral, as well as cases showing abnormal personality characteristics, are described.

The altogether astounding claim is made that, after five to eight years, 81 per cent (323 cases) showed favorable careers. There is a record of 95 per cent favorable careers in cases with personality and behavior problems, but of 70 per cent with the non-court and court delinquents: "With regard to the 134 favorable careers which the two groups of delinquents together showed, the carefully gathered information about them indicates that in only 31 was there any recurrence at all of delinquency." Yet, as the authors argue:

> Treatment of a delinquent cannot be expected in every case to render immediate and complete immunity from outbreaks of misbehavior, any more than medical treatment can be hoped always to achieve immediate relief from the symptoms of a curable disease. In our treatment cases we have definitely discovered that some early repetition of delinquency, especially considering the possible continuance of the stresses which originally caused the delinquency, may mean very little for the longtime outcome.

Those who had serious delinquencies had less favorable subsequent careers, as a rule. Save for some types of sex offenders there was no positive relation between the type of offense and the response to treatment. Little seems to have been done for the deeply-involved homosexual individuals. Prognosis depends much more on whether the delinquent has a normally balanced personality than it does on the type of the offense.

With reference to the careers of cases presenting personality and behavior problems, it was found that there was no particular age level at which one might expect especially favorable or unfavorable responses to treatment. It is alleged that the improvement cannot be due to maturation with approaching adulthood because the median age ranged from eighteen to twenty.

What is the relation of intelligence level to improvement? When the I.Q. was 70-79, response was unfavorable in 66 per cent of the cases; at 80-89, 23 per cent; at 90-109, 21 per cent; and at 110 and above, only 10 per cent. Yet the authors make an attempt — in the reviewer's opinion unsuccessful — to explain away the plain purport of their figures. When the figures are "up their psychiatric alley" the authors tend to accept them; when they are contrary, they attempt to explain them away. This may be an old attribute of the human mind; but it is not good science. However, the authors are undoubtedly right in asserting that high I.Q.'s may be associated with more intelligent, better-off families that offer more favorable opportunities environmentally and co-operate more willingly in treatment. The reviewer does not suggest that I.Q.'s tell the whole story, or even the major portion of it; but if intelligence does not help in adjustment, — even of delinquents, — what is it good for? The current reaction against I.Q.'s has in some quarters gone to extreme lengths.

The authors claim that the cases of abnormal personalities account for 48 per cent of the total number of failures. They conclude that "society offers little . . . by way of effective treatment for this class of cases," and question whether the amount of money now being spent on these cases is worth while. They think they require prolonged segregation in properly adapted colonies with experimental methods of re-educative therapy. The reviewer agrees, but is inclined to add that a little more judiciously applied eugenical sterilization in rigorously selected cases might also be a desirable therapeutic agent, now altogether too little used in the treatment of such cases. All too many people seem to have a complex against viewing any social problem, even temporarily and experimentally, from the point of view of human heredity.

What is the upshot of this study? Great claims are made for improvement. Are they excessive claims? We have a right to view them as improved, at least until further studies with adequate control groups are forthcoming.

Cardiovascular-Renal Disease: A clinicopathologic correlation study emphasizing the importance of ophthalmoscopy. By Lawrence W. Smith, M.D., Edward Weiss, M.D., Walter I. Lillie, M.D., Frank W. Konzelmann, M.D., and Edwin S. Gault, M.D. 4°, cloth, 277 pp., with 35 plates (76 illustrations) and 8 tables. New York and London: D. Appleton-Century Company, Inc., 1940. $4.50.

The authors, three pathologists, an ophthalmologist and an internist, have collaborated in the production of a clinicopathological correlative study. Four chapters deal with hypertensive cardiovascular-renal disease, four with hypertension, one with the renal aspects of senile atherosclerosis and three with nephrosis, including eclampsia and pyelonephritis. A final chapter discusses the place of the laboratory in the diagnosis and prognosis of cardiovascular-renal disease. Typical illustrative case histories, clinical findings and pathological reports are presented in detail throughout. The resultant pooled data are of the sort much in demand by pathologists and many clinicians. No claim is made for originality.

The only adverse criticism to be made of this careful and laboriously pieced-together work is its insufficient exhaustiveness for the specialist, and the lack of sufficient

therapeutic applicability for the practitioner. The typography and illustrations, and the charts in the appendix of the volume, are excellent.

Les perforations digestives de la fièvre typhoïde — pronostic, diagnostic et traitement. By Jacques Dor. 12°, paper, 134 pp., with 9 illustrations. Paris: Masson et Cie, 1939. 24 Fr. fr.

The author of this short monograph was struck with the importance of intestinal perforations in typhoid fever and with the very poor results of treatment in these conditions. This complication he estimated to occur in about 3 per cent of all cases and in about 30 per cent of all the fatal cases. The prognosis for recovery without operation is estimated to be 5 per cent. He collected 144 cases treated by various surgeons in Marseilles and found that only 18 recovered, a mortality of 87 per cent. The average mortality in other series was found to be 73 per cent; the best figure was about 50 per cent in a small series. Some of the lower figures were found to be misleading.

The author then goes on to review the clinical, pathological and surgical aspects. Particular emphasis is placed on early diagnosis and immediate operation, since most of the fatalities result from delaying operative intervention. The indications for various types of operative procedure are given. The problem of recurrent perforations is also considered.

The volume is well printed and is written in simple readable French, with references, as usual, limited almost entirely to French writings. Since typhoid fever is still an important cause of death in many communities in this country, this little brochure should be of interest to some surgeons.

Traité de l'immunité dans les maladies infectieuses. Jules Bordet. Second edition. 4°, paper, 879 pp. Paris: Masson et Cie, 1939. $3.00.

This is the second edition of the classical work first published by Professor Bordet just twenty years ago. When the first edition appeared, this book, together with that by Metchnikoff and the collected papers of Ehrlich, were the only available comprehensive treatises on immunological problems and became standards which every immunologist had on his shelf. Even at that time Bordet's book was so much the most complete and critically unbiased that it rapidly attained a commanding position in the literature of this subject. A formidable amount of information has been gained in the twenty years elapsing between the two editions, but Bordet has been constantly at work during this period and nothing that has been of any importance has been neglected in the present revision. The book again reflects the wisdom and broad scope of information of the writer who, directly or indirectly, has been the teacher of every modern immunologist. Bordet's authority is based upon active service in his science, which was initiated when, with other great masters of our profession, he began to publish during the latter part of the nineteenth century; and his influence has continued, undiminished by the passage of years, into our own time.

The book has few of the characteristics of an ordinary textbook or compilation, since Bordet is familiar, either by experiment or by careful scrutiny, with the matters he discusses. He retains the vitality of expanding his intellectual grasp to new discovery, and includes in this edition consideration of bacterial dissociation, antigen and antibody chemistry, theories of antiphylaxis and allergy and many other modern aspects of immunity that were unheard of when the first edition was written. He himself has contributed to many of the fundamental immunological discoveries and, as the reviewer has often noted, unlike almost every other great investigator, Bordet has never made a serious mistake, an achievement attributable to that clarity of mind and critical integrity which continue to keep this book a classic.

It is not a book for those who wish to look up, here or there, references or minute details of experimental procedure or results. It is a comprehensive and critical survey by a great scholar who reviews his subject with mature judgment.

Being of this nature, it should be read as a series of treatises rather than as a textbook, and for this reason, it is perhaps not a serious defect that it lacks extensive references to the literature and has no index. These omissions will probably be criticized and may lessen the general popularity of the book. They will not, however, detract from the great importance of this book for the scholar of immunology.

Injection Treatment of Hernia, Hydrocele, Ganglion, Hemorrhoids, Prostate Gland, Angioma, Varicocele, Varicose Veins, Bursae and Joints. By Penn Riddle, B.S., M.D., F.A.C.S. 4°, cloth, 290 pp., with 153 illustrations. Philadelphia and London: W. B. Saunders Company, 1940. $5.50.

This book is a timely addition to the collective literature, for injection treatment has established itself as the most effective method of treating a great variety of lesions. The author is not overenthusiastic about injection therapy but gives a very fair evaluation of the method. Even though he describes methods for such conditions as femoral hernia, he does not recommend them as the best treatment. For hernias he favors injection mainly in those of the indirect inguinal type, and adds: "No hernia with a ring over 2 cm. in diameter should be treated . . . [otherwise] cure is very doubtful though improvement may follow."

Few will agree on his unitarian hypothesis that fissure, fistula, hemorrhoids and pruritus ani are all due essentially to venous stasis. But this interpretation does not cause the author to deviate from the established methods of treatment, which are well presented.

The anatomy, development, diagnosis and technic of treatment are clearly enumerated so that a physician or medical student not conversant with the subject can easily follow the discussion. The book is an excellent text for the teaching of injection treatment in the clinic, and the practitioner will find it invaluable in guiding him through the details of injection of such lesions as hernia, varicose veins and hemorrhoids.

There are many excellent illustrations, and the printing is in large type, which makes reading easy and a pleasure.

A Synopsis of Surgical Anatomy. By Alexander Lee McGregor, M.Ch. (Edin.), F.R.C.S. (Eng.), with a foreword by Sir Harold J. Stiles, K.B.E., F.R.C.S. (Edin.). Fourth edition. 12°, cloth, 664 pp., with 648 illustrations. Baltimore: William Wood & Co., 1939. $6.00.

This book, now in its fourth edition, will continue to serve the needs of students, interns and surgeons in reviewing anatomical facts. Sir Harold J. Stiles, in the foreword, rightfully commends the author for the original manner in which he has presented and illustrated his subject. The book is divided into two parts, both written in a clear, stimulating fashion and illustrated with many good black-and-white drawings. The first part deals with normal anatomy, while the second considers abnormal anatomy.